1 <x{0,6}cx< th=""><th>0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}></th><th>AAY24112</th></x{0,6}cx<>	0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>	AAY24112
AAR53571		1 1:
1:	<pre></pre>	AAY24111
AAR53576	ck: 3006 len: 33 ! Aar53576 Spider venom calcium channel block	
ij	<pre><x{0,6}cx{5,6}cx{4}(b,q)ccx{3,4}cx{3,6}cx{0,9}></x{0,6}cx{5,6}cx{4}(b,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: AAY24114
AAR55087	ck: 3541 len: 33 Aar55087 Tarantula spider venom peptide. 8/	
1:	<pre><x{0,6}cx{5,6}cx{4}(b,q)ccx{3,4}cx{3,6}cx{0,9}> CX{6}CX{4}(B)CCX{4}CX{6}CX{6}CX{6}CX{6}CX{6}CX{6}CX{6}CX{6</x{0,6}cx{5,6}cx{4}(b,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: AAY24127
AAR70720	ck: 8841 len: 27 ! Aar70720 New omega Conotoxin peptide which	· ·
1:	<pre><x{0,6}cx{5,6}cx{4}(b,q)ccx{3,4}cx{3,6}cx{0,9}> CX{6}CXX{4}(B)CCX{4}CX{4}CX{3} CXYSXYCEADSECCTEQCVRSYCTLF</x{0,6}cx{5,6}cx{4}(b,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: AAY24130
AAY24108	ck: 5840 len: 34 ! Aay24108 Conopeptide Tx6.4. 9/1999	1
ij	<pre><x{0,6}cx{5,6}cx{4}(b,q)ccx{3,4}cx{3,6}cx{0,9}> x{3}Cx{4}(Cx{3})Cx{4}Cx{7} wlecsvwrshcrkdeccsnscdqrvcrlwppdw</x{0,6}cx{5,6}cx{4}(b,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: AAY24109
AAY24131	ck: 8971 len: 27 ! Aay24131 Gamma-conopeptide TxVIIA. 9/1999	п
;;	<pre><x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}> CX{6}CX{4}(E)CX{1}CX{1}CX{1}CX{1}CX{1} CGGYSTYCEVDSECCSDNCVRSYCTLF</x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: AAY87532
AAY24110	ck: 8841 len: 27 ! Aay24110 Conopeptide J101. 9/1999	ef
1:	<pre><x{0,6}cx{5,6}cx{4}(b,cx{3,4})cx{3,4}cx{3,6}cx{0,9}> Cx{6}Cx{4}(Cx{4}Cx{3})Cx{4}Cx{3} CxTYSKYCEADSECCTEQCVRSYCTLF</x{0,6}cx{5,6}cx{4}(b,cx{3,4})cx{3,4}cx{3,6}cx{0,9}></pre>	1: AAY87530
AAY24113	ck: 9467 len: 32 ! Aay24113 Conopeptide Gm6.7. 9/1999	FT.
:: rel	<pre><x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: AAU05930
AAY24115	ck: 8902 len: 27 Aay24115 Conopeptide Mr6.2. 9/1999	
1:	<pre><x{0,6}cx{5,6}cx{4} (b,q)ccx{3,4}cx{3,6}cx{0,9}=""> CX{6}CX{4} (B)CCX{3}CX{4}CX{3} CGGWSTYCEVDEBCCSESCVRSYCTLF</x{0,6}cx{5,6}cx{4}></pre>	1: AAU05972
AAY24107	ck: 385 len: 32 ! Aay24107 Conopeptide PnVIIA. 9/1999	
÷	<x{0,6}cx{5,6}cx{4} (e,0)="" ccx{3,4}cx{3,6}cx{0,9}=""> XCX{6}CX{4} (E) CCX{3,6}CX{4}CX{7}</x{0,6}cx{5,6}cx{4}>	1:
 	DCTSWFGRCTVNSECCSNSCDQTYCELYAFPS	AAU06037

! Aay87530 Mature conotoxin peptide #6. 7/20

ck: 2221 len: 24

<X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{4}(Q)CCX{3,4}CX
CYGGTSCDSGIQCCSGWCIFVCF

<X{0,6}CX{5,6}CX{4}(E,0)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{4}(C)CCX{3,4}CX
CYBSGTSCNTGNQCCSGWCIFVCL

ck: 2321 len: 24 ! Aau05930 Cone snail O-superfamily conotoxi

<x{0,6}CX{5,6}CX{4}(E,0)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{4}(Q)CCX{3,4}CX
CXDGGTSCNTGNQCCSGXCIFLCL

! Aau05972 Cone snail O-superfamily conotoxi

ck: 7712 len: 27

<x{0,6}Cx{5,6}Cx{4}(E,0)CCx{3,4}Cx{3,6}Cx{0,9}>
xCx{6}Cx{6}(Cx{3}Cx{3}Cx{3}Cx
xCxX6DCFRSDHIQCSGKCAFVCL

! Aau06037 Cone snail O-superfamily conotoxi

ck: 6262 len: 31

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! Aay87532 Mature conotoxin peptide #7. 7/20
                                                                                                                                                                                                                                                                                                                                                                                                             ! Aay24130 Gamma-conopeptide PvVIIA. 8/2003
                                                                                                                                                                                                                                                                                       \frac{z}{z} 1 Aay24127 Gamma-conopeptide Tx6.1. 9/1999
Tx6.5. 9/1999
                                                                                                  ! Aay24111 Conopeptide Tx6.6. 9/1999
                                                                                                                                                                                                     ! Aay24114 Conopeptide Mr6.1. 9/1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ! Aay24109 Conopeptide Tx6.9. 9/1999
                                                                                                                            <X{0,6}CX{5,6}CX{4}(E,0)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{4}(E)CCx{3}CX{4}CX
LCPDYTEPCSHAHECCSWNCYNGHCT
                                                                                                                                                                                                                                                                                                                                                                                                                                     <x{0,6}Cx{5,6}Cx{4}(E,Q)CCx{3,4}Cx{3,6}Cx{0,9}
x{5}Cx{6}Cx{4}(E)CCx{3}Cx{3}Cx{3}
GWWGECKDGLTTCLAPSECCSEDCEGSCTWW</pre>
! Aay24112 Conopeptide
                                                                                                                                                                                                     ck: 2999 len: 29
                                                                                                                                                                                                                                                                                                         ck: 6382 len: 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ck: 9205 len: 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ck: 2573 len: 24
ck: 6937 len: 31
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1;	< x(0,6) cx(5,6) cx(4) (B,0) ccx(3,4) cx(3,6) cx(0,9) >		
	x{5}Cx{6}Cx{5}Cx{3}Cx NRLSRCIPSGDLCFPSDHIQCCSAKGAFVCL	AAU06039	ck: 5997
AAU06044	1 044 ck: 5060 len: 26 Aau06044 Cone snail O-superfamily conotoxin	÷	<x{0,6}cx< td=""></x{0,6}cx<>
ä	<pre><x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}> Cx{6}Cx{6}(C)CCx{3}Cx{3}Cx{3}Cx CIXSGDLCFXSDHIQCCNAKCAFACL</x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	AAU06040	ck: 5824
AAU06047	047 ck: 6984 len: 31 ! Aau06047 Cone snail O-superfamily conotoxin		<x{0,6}cx< td=""></x{0,6}cx<>
1;	<pre><x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}> x{5}CX{6}CX{6}CX{3}CX{3}CX NRLSWCIPTGDLCFPSDHIQCCSGXCTFVCM</x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: AAU05922	ck: 1895
AAU06048	048 ck: 8247 len: 27 Aau06048 Cone snail O-superfamily conotoxin		<x{0,6}cx< td=""></x{0,6}cx<>
1. :	<pre><x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0}(cx{0,cx}{0< td=""><td>1: AAU05980</td><td>ck: 2589</td></x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0}(cx{0,cx}{0<></pre>	1: AAU05980	ck: 2589
AAU05953	953 ck: 9409 len: 32 ! Aau05953 Cone snail O-superfamily conotoxin	,	<x{0,6}cx< td=""></x{0,6}cx<>
ä	<pre><x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: AAU06002	ck: 8003
AAU06033	033 ck: 6147 len: 31 ! Aau06033 Cone snail O-superfamily conotoxin	,	<x{0,6}cx< td=""></x{0,6}cx<>
1:	<pre><x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: AAU06020	ck: 8377
			<x{0,6}cx< td=""></x{0,6}cx<>
AAU06038	<pre>cx: 5b54</pre>	1;	
1:	CINSGDLCFXSDHIQCCSAKCAFVCL	AAU05924	ck: 2357
AAU06046		ï	<x{0,6}cx< td=""></x{0,6}cx<>
1:	ACTOR STATE A TRANSPORT OF A TRANSPO	AAU05971	ck: 1909
AAU06052	1 052 ck: 7832 len: 27 Aau06052 Cone snail O-superfamily conotoxin	<u>.</u>	<x{0,6}cx< td=""></x{0,6}cx<>
ï	<pre><x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}> <xcx{6}cx{6}(q)ccx{3}cx{3}cx pre="" xcxsqxlcprsdhiqccsakcafvcl<=""></xcx{6}cx{6}(q)ccx{3}cx{3}cx></x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	AAU06045	ck: 6172
AAU06019	019 Ck: 2540 len: 29 Aau06019 Cone snail O-superfamily conotoxin	1:	<x{0,6}cx x N</x{0,6}cx
1:	<pre><x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	AAU05932	ck: 4641
AAU06036		1;	<x{0,6}cx< td=""></x{0,6}cx<>
	xCx{e}cx{{}}cx{{}}{3}cx{{}}{3}cx{{}}cx{{}}		

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! Aau06039 Cone snail O-superfamily conotoxin
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                                                                                                                                                                                                                                ! Aau06040 Cone snail O-superfamily conotoxin
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ! Aau05971 Cone snail O-superfamily conotoxin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X(5,6)CX(4)(B,Q)CCX(3,4)CX(3,6)CX(0,9)>
x(5)CX(6)CX(6)(Q)CCX(3)CX
NRLSWCIPSGDLCPPSDHIQCCNAXCAFVCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      X{5,6}CX{4}(E,Q)CCX{3,4}CX,3,6}CX{0,9}>
Cx{6}CX{6}CX{4}(O)CCX{3}CX{4}CX
                                                                                                                                                                                                                                                                          x(5,6)Cx(4)(E,Q)CCx(3,4)Cx(3,6)Cx(0,9)>
Cx(6)Cx(6)(C)CCx(3)Cx(3)Cx
CIXSGDLCFXSDHIQCCNAXCAFVCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X{5,6}CX{4}(C,0)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{4}(0)CCX{3}CX
CXDSGTSCNTGNQCCSGXCIFVCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X(5,6)CX(4)(E,Q)CCX(3,4)CX(3,6)CX(0,9)

XCX(6)CX(6)(CCX(3)CX(3)CX

XCRVXGXICGMLFXAQCCDGXCFFVCM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             x(5,6)cx(4)(E,0)ccx(3,4)cx(3,6)cx(0,9)>
xcx(6)cx(6)(0)ccx(3)cx(3)cx
XCIXRGDLCFXSDRIQCCSGKCTFVCM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         x(5,6)Cx(4)(B,Q)CCx(3,4)Cx(3,6)Cx(0,9)>
Cx(6)Cx(4)(Q)CCx(3)Cx(3)Cx
CxDGGTGCDSGNQCCSGXCIFVCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          xX5.6)CX{4}(E.Q)CCX{3,4}CX{3,6}CX{0,9}>
x{3}Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
                                                                                                           X{5,6}CX{4}(B,Q)CCX{3,4}CX{3,6}CX{0,9}>
x{5}CX{6}CX{6}(Q)CCX{3}CX
NRLSRCIPSGDLCPPSDHIQCCNAECAFVCL
                                                                                                                                                                                                                                                                                                                                                                                                                                           x(5,6)Cx(4)(B,Q)CCx(3,4)Cx(3,6)Cx(0,9)>
Cx(6)Cx(4)(Q)CCx(3)Cx(3)Cx
CxDGGTGCDSGNQCCSGXCIFACL
XCIXSGDLCFXSDHIQCCSAKCAFVCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    len: 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       len: 31
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                                                                    len: 31
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	AAU06034	ck: 5564 len: 26 : Aau06034 Cone snail O-superfamily conotoxin	ï
ı	;;	Cx{6}Cx{6}Cx{6}XCx{3}Cx Cx{6}Cx{6}XCx CIXSGDLCFXSDHIQCCNAKCAFVCL	ABB88895
d	AAU06035 1:	<pre>ck: 6287 len: 31</pre>	1: ABB88903
1	AAU06043	<pre>ck: 5538 len: 31</pre>	1: ABB88896
-	ADC21243	ck: 2431 len: 33 ! Adc21243 Selenocosmia huwena HWAP-I polypep <x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{6}cx{0,9}></x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{6}cx{0,9}>	1: ABB88901
-	ABB88893	<pre>ck: 4784 len: 30 ! Abb88893 Conus virgo I-superfamily conotoxi <x{0,6}cx{5,6}cx{4}(0) ccx{3,4}cx{4}cx{6}="" ccx{3,6}cx{4}cx{6}="" clhetspcrrsfqcchgiccfrrcsnscrf<="" cx{6,6}cx{5,6}cx{4}(0)="" pre=""></x{0,6}cx{5,6}cx{4}(0)></pre>	1: ABB88899
_	ABB88886 1:	<pre>ck: 7477 len: 31 ! Abb88886 Conus emaciatus I-superfamily conc <x{0,6}cx{5,6}cx{4}(e,0)ccx{3,4}cx{3,6}cx{0,9}> CX{6}CX{4}(Q)CCX{3,4}CX{7} CRREGSSCRRSYQCCRKSCCIGECEFPCRWV</x{0,6}cx{5,6}cx{4}(e,0)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: ABB88897
_	ABB88902 1:	<pre>ck: 4050 len: 30 ! Abb88902 Conus figulinus I-superfamily conc <x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}> CX{6}CX{5}CX{9}(E)CCX{3,4}CX{2}(E)CCX{3,6}CX{2}</x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: AAO15120
٠	ABB88833 1:	<pre>ck: 4508 len: 38 ! Abb88833 Conus lynceus I-superfamily conotc <x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{9}></x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{9}></pre>	1: AAO15121
_	ABB88909	<pre>ck: 4452 len: 30 ! Abb88909 Conus striolatus I-superfamily con <x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}> CX{6}CX{5}CX{9}(E)CCX{3,4}CX{2,6}</x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1: ABG99363
_	ABB88884 1:	<pre>ck: 4784</pre>	1: ABG99520
	ABB88900	<pre>ck: 6547 len: 31 ! Abb88900 Conus figulinus I-superfamily conc <x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></x{0,6}cx{5,6}cx{4}(e,q)ccx{3,4}cx{3,6}cx{0,9}></pre>	1:

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! Abb88901 Conus figulinus I-superfamily con
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                                                                                                                                                                                                                                                                                                                                                                                                                          1 Abb88896 Conus virgo I-superfamily conotox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ! Abb88899 Conus figulinus I-superfamily con
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ! Abb88897 Conus virgo I-superfamily conotox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ! Aao15120 Agriosphodrus dohrni (assassin bu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ! Aao15121 Isyndus obscurus (assassin bug) c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ! Abg99363 Conus sp conotoxin-associated pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ! Abg99520 Conus sp conotoxin-associated pep
                                                                                                                                        <X{0,6}CX{5,6}CX{4}(E,0)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{4}(Q)CCX{3}CX{4}CX{6}
CLHETPPCRRSFQCCHGNCCFRRCSNSCRF
                                                                                                                                                                                                                                                                                                   <X{0,6}CX{5,6}CX{4}(E,0)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{9}(E)CCX{3}CX{3}CX{2}
CHHEGLPCASDDGCCGMECCGGVCSSHCGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <x{0,6}CX{5,6}CX{4}(E,0)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{4}(Q)CCX{3}CX{4}CX{6}
CLHETSPCGRSFQCCHGICCFRRCSNSCRF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <x{0,6}Cx{5,6}Cx{4}(E,0)CCx{3,4}Cx{3,6}Cx{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{7}
CRAEGVYCEYGSQCCLSQCCMASCANPCRHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <x{0,6}Cx{5,6}Cx{4}(E,0)CCx{3,4}Cx{3,6}Cx{0,9}>
Cx{6}Cx{9}(E)CCx{3}Cx{3,6}Cx{2}
CHEGLPCTSDDGCCGMECCGGVCSSHCGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <X{0,6}CX{5,6}CX{4}(E,0)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{4}(Q)CCX{3}CX{4}CX{6}
CLYETSPCRRSFQCCHGICCFRRCSNSCRF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <x{0,6}Cx{5,6}Cx{4}(E,0)CCx{3,4}Cx{3,6}Cx{0,9}>
x{5}Cx{6}Cx{4}(O)CCx{3}Cx{5}Cx{6}
xRxGSCTSXLATCTQDQQCCTDVCXKRDXCALXDDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <x{0,6}Cx{5,Cx{5,Cx{3,4}Cx{3,6}Cx{3,6}}.
<xcx{6}Cx{4}(0)CCx{3,Cx{3,6}Cx{4}}
DCXSXLGSCIAXSQCCSXVCDXXCRLXR</pre>
CX{6}CX{4}(Q)CCX{3}CX{4}CX{7}
CRAEGVRCEFDSQCCESECCMGSCANPCRIP
                                                                                              ck: 4856 len: 30
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ck: 7710 len: 35
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                                                                             Ra6.3
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                                                                             1 Abb96884 Omega-conopeptide
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                                                                                                                                                                                                                                                                                              ! Abb96882 Omega-conopeptide
                                                                                                                                                                                                                                                                                                                                                                                                     ! Abb96820 Omega-conopeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 Abb96899 Omega-conopeptide
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xCx{6}Cx{5}(E)CCX{4}CX{6}CX{4}
ACKGVFDACTPGKNECCPNRVCSDKHKWCKWKL
<X{0,6}CX{5,6}CX{4}(B,0)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{4}(O)CCX{3}CX{4}CX{7}
CITLGTRCKVXSQCCRSSCRNGRCAXSXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ! Adl11898 HWTX-I protein
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CX{6}CX{4}(O)CCX{3}CX{4}CX{7}
CITLGTRCKVPSQCCRSSCKNGRCAPSPEEW</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <x{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}
CX{6}CX{4}(Q)CCX{3}CX{6}CX
CNARNSGCSQHXQCCSGSCNXTAGVCL</pre>
                                                                                                      {5,6}CX{4}(C,Q)CCX{3,4}CX{3,6}CX{0,9}
CX{6}CXX{4}(Q)CCX{3}CXX{6}CX
CNARNSGCSQHPQCCSGSCNKTLGVCL
                                                                                                                                                                                                                                                                                                                      <x{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}
CX{6}CX{4}(Q)CCX{3}CX{6}CX
CNARNDGCSQHSQCCSGSCNKTAGVCL</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <x{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}
CX{6}CX{4}(Q)CCX{3}CX{6}CX
CNARNDGCSQHSQCCSGSCNKTAGVCL</pre>
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xCx{6}Cx{5}(E)CCx{4}Cx{6}Cx{4}
ACKGVFDACTPGKNECCPNRVCSDKHKWCKWKL</pre>
                                                                                                                                                                                                               <x{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX
CX{6}CX{4}(Q)CCX{3}CX{6}CX
CNARNSGCSQHXQCCSGSCNKTLGVCL
                                                                                                                                                                                                                                                                                                                                                                                                                              <x{0,6}Cx{5,6}Cx{4}(E,Q)CCx{3,4}Cx{3,6}Cx{0,9}
Cx{6}Cx{4}(Q)CCx{3}Cx{4}(Cx{7}
CITPGTRCKVPSQCCRGPCKNGRCTPSPSEW</pre>
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457,216,429
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EMBL, Release
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                                                                                                                                                                                                                                                                                                                                                                                                                                                      ! Abg99678 Conus sp conotoxin-associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 Abg99676 Conus sp conotoxin-associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ! Abg99673 Conus sp conotoxin-associated
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                                                                                                                                                                                                                                                                                                                                            1 Abg99679 Conus sp conotoxin-associated
                    conotoxin-associated
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                                                                                                                                                                                                                                     ! Abg99681 Conus sp conotoxin-associated
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x{6}\Cx{6}\Cx{4}\(E)\Ccx{3}\Cx{4}\Cx{9}\\
wwrwggcmawfgkCSKDSECCSNSCDITRCELMRFPPDW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             {0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{4}(Q)CCX{3}CX{4}CX{7}
CITXGTACKVXSQCCRGXCROGRCTXSXSXX
                                               <X{0,6}CX{5,6}CX{4}(E,0)CCX{3,4}CX{3,6}CX{0,9}>
x{4}CX{6}CX{4}(0)CCX{3}CX{4}
LWSDCYSWLGSCIAPSQCCSEVCDYYCRLWR
                                                                                                                                                        <x{0,6}cx{5,6}cx{4}(E,0)ccx{3,4}cx{3,6}cx{0,9}>
x{5}Cx{6}Cx{4}(0)ccx{3}cx{5}Cx{6}
wregsctswlatctqdqqcctdvcyrrdycalwddr
                                                                                                                                                                                                                                                              {0,6}CX{5,6}CX{4} (E,Q)CCX(3,4)CX{3,6}CX{0,9}>
CX{6}CX{4} (E)CCX{3}CX{4}CX{3}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               {0,6}CX{5,6}CX{4}(E,Q)CCX(3,4}CX{3,6}CX{0,9}>

*CX{6}CX{4}(Q)CCX{3}CX{3}CX{4}

DCYSWLGSCIAPSQCCSEVCDYYCRLWR
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CX{6}CX{4}(CCX{3}CX{6}CX
CNARNSGCSQHPQCCSGSCNXTAGVCL
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Total sequences: CPU time:

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The peptide is useful in blocking Ca channels in cells, such as cells in the nervous system of a mammal, in the treatment of Ca channel-mediated diseases and conditions (e.g. angina, hypertnesion, cardiomyopathy, supraventricular arrhythmias, esophogeal achalasia, premature labor and Raynaud's disease. The peptides are obtained from the spider through the process of milking by electrical stimulation. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                            Calcium channel-blocking polypeptide(s) from heteropoda venatoria venom used to treat e.g. angina, hypertension, cardiomyopathies, etc. and for invertebrate pest control.
                                                                                                                                       'enom; calcium channel blocking protein; calcium-antagonist;
hypertension; cardiomyopathy; pesticide.
                                                                                                              Spider venom calcium channel blocking peptide AU-3
                                                                                                                                                                                                                                                                                                                                                         Volkmann RA;
              AAR53571 standard; peptide, 32 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 5; Page 19; 31pp; English.
                                                                                                                                                                                                                                                                    93WO-US007555
                                                                                                                                                                                                                                                                                                92US-00970333
                                                                                                                                                                                                                                                                                                                                                         Saccomano NA,
                                                                     (revised)
(first entry)
                                                                                                                                                                                   Heteropoda venatoria
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                                                                                                                                                                                                                                                                                                                             INC.
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                                                                                                                                                                                                                                                                                                                           (PFIZ ) PFIZER
                                                                                                                                           venom;
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! AA SEQUENCE 1.0
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                                                                                                                                                                                                                                                                    16-AUG-1993;
                                                                     25-MAR-2003
29-NOV-1994
                                                                                                                                                                                                                                         11-MAY-1994
                                          AAR53571;
                                                                                                                                                          angina;
                                                                                                                                        Spider
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Check: 135 Type: P February 20, 2007 16:53 AAR53571 Length: 32

LOSTIWHY CF TDQSECTION KCSRQLCKYV ID _

SEQUENCE 1.0 AAR53576 standard, peptide, 33 AA. (first entry) (revised) 25-MAR-2003 29-NOV-1994 AAR53576;

Spider venom calcium channel blocking peptide KJ-5.

Spider venom; calcium channel blocking protein; calcium-antagonist; angina; hypertension; cardiomyopathy; pesticide.

Heteropoda venatoria

409410195-A1

11-MAY-1994

93WO-US007555 16-AUG-1993;

92US-00970333 30-OCT-1992;

(PFIZ) PFIZER INC.

Volkmann RA; Saccomano NA, Kelbaugh PR,

WPI; 1994-167384/20.

Calcium channel-blocking polypeptide(s) from heteropoda venatoria venom used to treat e.g. angina, hypertension, cardiomyopathies, etc. and for invertebrate pest control.

Claim 25; Page 22; 31pp; English.

The peptide is useful in blocking Ca channels in cells, such as cells in the nervous system of a mammal, in the treatment of Ca channel-mediated diseases and conditions (e.g. angina, hypertnesion, cardiomyopathy, supraventricular arrhythmias, esophogeal achalasia, premature labor and Raynaud's disease. The peptides are obtained from the spider through the process of milking by electrical stimulation. (Updated on 25-MAR-2003 to correct PN field.)

Sequence 33 AA;

AAR53576 Length: 33 February 20, 2007 16:53 Type: P Check: 3006

DESTIWHING IDOSECCEGW KCSROLCKYV IDW

11AA_SEQUENCE 1.0 ID AAR55087 standard; peptide; 33 AA.

AAR55087;

(revised)
(revised)
(first entry) 27-AUG-2003 25-MAR-2003

31-OCT-1994

Tarantula spider venom peptide.

Calcium channel blocker; invertebrate pest control; angina; hypertension; cardiomyopathies; supraventricular arrhythmices; oesophageal achalasia; premature labour; Raynaud's disease; physiology.

Theraphosidae.

WO9410196-A1 11-MAY-1994.

93WO-US009069 28-SEP-1993;

92US-00973323 (PFIZ) PFIZER INC. (NPSP-) NPS PHARM INC. 03-NOV-1992;

Volkmann RA; Saccomano NA, Phillips D, Nason DM,

WPI; 1994-167385/20

the Calcium channel blocking polypeptide(s) from spider venom - useful in ocontrol of invertebrate pests and in treatment of angina, hypertension etc. in mammals.

Claim 1; Page 19; 29pp; English.

The polypeptide is one of a number isolated from tarantula spider venom. The peptides are useful as calcium channel blockers in cells and are also useful in the contol of invertebrate pestes and in the treatment of diseases and conditions mediated by calcium channel function. The peptides amy also be used in the study of the physiology of cells, e.g. nervous, muscular and cardiovascular cells. See also AAR55085-93. (Updated on 25-MAR-2003 to correct PN field.) (Updated on 27-AUG-2003 to correct OS field.)

Sequence 33 AA

Type: P Check: 3541

February 20, 2007 16:53

AAR55087 Length: 33

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conotoxin peptide(s) containing one or more cyclising disulphide bonds inhibit synaptic transmissions at neuromuscular junctions, useful in binding assays and as pesticides.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Type: P Check: 8841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Abogadie F, Hopkins CE,
                                                                                                                                 New omega Conotoxin peptide which binds a specific receptor
                                                                                                                                                           conotoxin; inhibitor; synaptic transmission; class alpha; neuromuscular junction; nicotinic acetylcholine receptor.
                                                                                                                                                                                                                                                      note= "Gla (gamma-carboxyglutamate)"
                                                                                                                                                                                                                                                                              'note= "Gla (gamma-carboxyglutamate)"
                                                                                                                                                                                                                                                                                                        note= "Gla (gamma-carboxyglutamate)"
CAEFOSKOK DSECOSTLEC SPTWKKOYP SPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     February 20, 2007 16:53
                                                                                                                                                                                                                                                                                                                                                                                                                                                               (SALK ) SALK INST BIOLOGICAL STUDIES (UTAH ) UNIV UTAH RES FOUND.
                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cruz LJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CKTYSKYCEA DSECCTEQCV RSYCTLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard; peptide; 34 AA.
                            !!AA_SEQUENCE 1.0
ID AAR70720 standard; peptide; 27 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 18; Page 51; 56pp; English
                                                                                                                                                                                                                                                                                                                                 /note= "Phe-NH2"
                                                                                                                                                                                                                                                                                                                                                                                                                                       93US-00084848
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                                                                                                          (first entry)
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Dykert J, Torres JL;
                                                                                              (revised)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 27 AA;
                                                                                                                                                                                                                                        Modified-site
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                                                                                                                                                                                                                                                                                                                                                                                                              27-JUN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                       29-JUN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13-SEP-1999
                                                                                           25-MAR-2003
25-SEP-1995
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                                                                                                                                                                                                    Synthetic
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AAY24108
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                                                                    AAR70720;
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Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
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          Conopeptide, gamma-conopeptide, venom; cone snail; cation channel; epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
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                                                                                                                                                         'note= "optionally gamma-carboxyglutamic acid"
                                                                                                                                                                                                                  'note= "optionally gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Burlingame AL, Olivera BM, Walker
Cruz LJ, Imperial J, Colledge C;
                                                                                                                             'note= "optionally 6-bromo-Trp"
                                                                                                                                                                                     note= "optionally 6-bromo-Trp"
                                                                                                                                                                                                                                               note= "optionally hydroxy-Pro"
                                                                                                                                                                                                                                                                          'note= "optionally hydroxy-Pro"
                                                                                                                                                                                                                                                                                                         /note= "optionally 6-bromo-Trp"
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                                                                                               Location/Qualifiers
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ID AAY24131 standard; peptide; 27
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(UYVR-) UNIV VRIJE.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kits KS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fainzilber M, Kits KS
Walkins M, Shetty R,
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                                                                                                                Misc-difference
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                                                        Conus textile.
                                                                                                                                           Modified-site
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                                                                                                                                                                                                                                                             Modified-site
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                                                                       Synthetic
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WO9930732-A1

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February 20, 2007 16:53
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                                                                                                                                    Disclosure, Page 55; 61pp; English.
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ID AAY24110 standard; peptide; 27 AA.
                                           97US-0069706P
                               98WO-US026792
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                                                       (UTAH ) UNIV UTAH RES FOUND.
(UYVR-) UNIV VRIJE.
(REGC ) UNIV CALIFORNIA.
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                                                                                                                                                                                                                                                                                      (first entry)
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(UYVR-) UNIV VRIJE.
(REGC ) UNIV CALIFORNIA.
                                                                                 Kits KS,
                                                                                       Shetty R,
                                                                                                    WPI; 1999-418708/35.
                                                                                                                                                                                                                                                                                                   Conopeptide J101
                                                                                                                                                                                                                             AAY24131 Length: 27
                                                                                                                                                                                                                Sequence 27 AA;
                                                                                                                                                                                                                                                                                                                                  Conus textile.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                     Key
Modified-site
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                                                                                 Fainzilber M,
                                           16-DEC-1997;
                               16-DEC-1998;
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                  24-JUN-1999
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                                                                                        Walkins M,
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                                                                                                                        channels
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neuronal pacemaker calcium
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              Burlingame AL, Olivera BM, Walker
ruz LJ, Imperial J, Colledge C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Olivera BM, W
L J, Colledge
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                                                                                                  e.g.
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                                                                                                Gamma-carboxylated conopeptides used as,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                       CKTYSKYCEA DSECCTEQCV RSYCTLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "optionally
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                                                                                                                                                   Claim 20; Page 30; 61pp; English
   Kits KS, bure
Cruz LJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                       !!AA_SEQUENCE 1.0
ID AAY24113 standard; peptide; 32
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(UYVR-) UNIV VRIJE.
(REGC ) UNIV CALIFORNIA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note=
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               Fainzilber M, Kits KS
Walkins M, Shetty R,
                                                               WPI; 1999-418708/35.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conopeptide Gm6.7.
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Synthetic.
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                                                                                                                                                                                                                                                                                                                                      Sequence 27 AA;
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Modified-site
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAY24113;
                                                                                                                  channels
Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
                                                                                                                                                                                                                                                                                                                                                                                  The present invention describes gamma-carboxylated conopeptides derived from cone snail venom. The gamma-conopeptides and their propertides are useful as agonists of neuronal pacemaker calcium channels. The conopeptides are naturally available in minute amounts in the venom of snails and their derivatives are synthetic. The peptides modulate slow inward cation channels in vertebrates involved in syndromes of clinical relevance, such as epileptic activity in hippocampus and pacemaker potentials in heart muscle. The present sequence represents a gamma-conopeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conopeptide; gamma-conopeptide; venom; cone snail; cation channel; epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
                                                                                                                                                                                                                  Walker C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Type: P Check: 8971
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                                                                                                                                                                                                                  , Burlingame AL, Olivera BM, Wal
Cruz LJ, Imperial J, Colledge C;
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Check: 8841

Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium

Claim 20, Page 30; 61pp; English

channels.

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Walker

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Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
The present invention describes gamma-carboxylated conopeptides derived from cone snail venom. The gamma-conopeptides and their propeptides are useful as agonists of neuronal pacemaker calcium channels. The conopeptides are naturally available in minute amounts in the venom of cone snails and their derivatives are synthetic. The peptides modulate slow inward cation channels in vertebrates involved in syndromes of clinical relevance, such as epileptic activity in hippocampus and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present invention describes gamma-carboxylated conopeptides derived from cone snail venom. The gamma-conopeptides and their propeptides are useful as agonists of neuronal pacemaker calcium channels. The
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                                                                                                                                                                                                                                                                                                                                                                                                   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
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                                                                                                                                                                                    Type: P Check: 9467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               note= "optionally gamma-carboxyglutamic acid"
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l J, Colledge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note= "optionally 6-bromo-Trp'
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cuz LJ, Imperial J,
                                                                                                                                                                                  February 20, 2007 16:53
                                                                                                                                                                                                                    ECRAWYAPCS PGAQCCSLLM CSKATSRCIL AL
                                                                                                                     pacemaker potentials in heart muscle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                  SEQUENCE 1.0
AAY24115 standard, peptide, 27 AA
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VRIJE.
                                                                                                                                                                                                                                                                                                                                  13-SEP-1999 (first entry)
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(UYVR-) UNIV VRIJE.
(REGC ) UNIV CALIFORNIA.
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                                                                                                                                                                                                                                                                                                                                                                   Conopeptide Mr6.2,
                                                                                                                                                                                    Length: 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conus marmoreus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Misc-difference
                                                                                                                                                   Sequence 32 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic
                                                                                                                                                                                                                                                                                                    AAY24115;
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Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
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                                                                                                                                                                                                         Conopeptide; gamma-conopeptide; venom; cone snail; cation channel; epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Walker C;
                          Type: P Check: 8902
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                                                                                                                                                                                                                                                                                                                                                                           'note= "optionally gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                                                                                 "optionally gamma-carboxyglutamic acid"
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Cruz LJ, Imperial J, Colledge C;
                                                                                                                                                                                                                                                                                                                       note= "optionally 6-bromo-Trp"
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                        February 20, 2007 16:53
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                                                     DEECCSESCV RSYCTLF
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ID _AAY24112 standard; peptide; 31 AA.
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                                                                              !!AA_SEQUENCE 1.0
ID _AAY24107 standard; peptide; 32
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(UTVR-) UNIV VRIJE.
(REGC ) UNIV CALIFORNIA.
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                                                                                                                                                     (first
                                                                                                                                                                               Conopeptide PnVIIA.
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                          Length: 27
                                                     CGGWSTYCEV
                                                                                                                                                                                                                                                     pennaceus.
                                                                                                                                                                                                                                                                                                          Misc-difference
Sequence 27 AA;
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                                                                                                                                                                                                                                                                  Synthetic.
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                           AAY24115
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epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel
Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
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                                    Conopeptide, gamma-conopeptide, venom, cone snail; cation channel; epilepsy; pacemaker; heart muscle, neuronal pacemaker calcium channel.
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                                                                                                                                note= "optionally gamma-carboxyglutamic acid"
                                                                                                                                                                    note= "optionally gamma-carboxyglutamic acid"
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                                                                                                                                                                                        "optionally gamma-carboxyglutamic acid'
                                                                                                                                                                                                                                                                                                                                                              Olivera BM, Walker
| J, Colledge C;
                                                                                                             note= "optionally 6-bromo-Trp"
                                                                                                                                                  note= "optionally hydroxy-Pro
                                                                                                                                                                                                                             /note= "optionally 6-bromo-Trp
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                                                                                           Location/Qualifiers
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standard; peptide; 34 AA.
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                                                                                                                                                                                                                                                                                                                                                                        Cruz LJ,
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13-SEP-1999 (first entry)
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(REGC ) UNIV CALIFORNIA.
                                                                                                                                                                                        note=
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                                                                                                                                                                                                                                                                                                                                                             Fainzilber M, Kits K!
Walkins M, Shetty R,
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                 Conopeptide Tx6.5
                                                                                                    Misc-difference
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                                                                                                                                                                                                                    Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 31 AA;
                                                               Conus textile
                                                                                                                     Modified-site
                                                                                                                                         Modified-site
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                                                                        Synthetic
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ID AAY24111
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Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;

Conopeptide Tx6.6.

e.g. neuronal pacemaker calcium The present invention describes gamma-carboxylated conopeptides derived from cone snail venom. The gamma-conopeptides and their propeptides are useful as agonists of neuronal pacemaker calcium channels. The conopeptides are naturally available in minute amounts in the venom of cone snails and their derivatives are synthetic. The peptides modulate alow inward cation channels in vertebrates involved in syndromes of clinical relevance, such as epileptic activity in hippocampus and pacemaker potentials in heart muscle Conopeptide; gamma-conopeptide; venom; cone snail; cation channel; epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel. ت "optionally gamma-carboxyglutamic acid" acid" /note= "optionally gamma-carboxyglutamic acid" Check: 4267 Walker "optionally gamma-carboxyglutamic Burlingame AL, Olivera BM, W ruz LJ, Imperial J, Colledge AAY24111 Length: 34 February 20, 2007 16:53 Type: P "optionally 6-bromo-Trp" /note= "optionally 6-bromo-Trp" note= "optionally hydroxy-Pro" 'note= "optionally 6-bromo-Trp" 'note= "optionally 6-bromo-Trp' DWWDDGCSVW GPCTYNAECC SGDCHETCIF GWEN Gamma-carboxylated conopeptides used as, Location/Qualifiers ¥. Claim 20; Page 30; 61pp; English Cruz LJ, 1.0 standard; peptide; 29 98WO-US026792 97US-0069706P UTAH RES FOUND. (first entry) (UTAH) UNIV UTAH RES FO (UYVR-) UNIV VRIJE. (REGC) UNIV CALIFORNIA. /note= note= Kits KS, 'note= Fainzilber M, Kits ... Shetty R, WPI; 1999-418708/35. Conopeptide Mr6.1. Misc-difference Misc-difference Misc-difference Misc-difference Conus marmoreus Sequence 34 AA; Conus textile. Synthetic. Modified-site Modified-site Modified-site Modified-site WO9930732-A1 16-DEC-1998; 16-DEC-1997; 13-SEP-1999 24-JUN-1999 channels. ! AA SEQUENCE AAY24114 AAY24114; SXXXXXXXXXXXX

97US-0069706P

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16-DEC-1997;
 Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
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                                                                                                                                                                                                                                                                                            Walker C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Type: P Check: 2999
                                          /note= "optionally gamma-carboxyglutamic acid"
                                                                                                                         /note= "optionally gamma-carboxyglutamic acid"
                                                                                                                                             /note= "optionally gamma-carboxyglutamic acid"
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                                                                                 note= "optionally hydroxy-Pro"
                                                                                                     note= "optionally 6-bromo-Trp"
                                                            note= "optionally 6-bromo-Trp"
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                     Location/Qualifiers
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                                                                                                                                                                                                                                                                                                       Cruz IJ,
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(REGC ) UNIV CALIFORNIA.
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                                                                                                                                                                                                                                                                                           Kits KS,
                                                                                                                                                                                                                                                                                 Fainzilber M, Kils.
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                                                                                            Misc-difference
                                                   Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 29 AA;
                              Modified-site
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                                                                       Modified-site
                                                                                                               Modified-site
                                                                                                                                    Modified-site
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 Synthetic
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98WO-US026792.

16-DEC-1998;

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Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
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                                                                                                                                                                                                                                                   from cone shall verom. The gamma-conopoptides and their propeptides derived useful as agonists of neuronal pacemaker calcium channels. The conopeptides are naturally available in minute amounts in the venom of cone snails and their derivatives are synthetic. The peptides modulate allow invard cation channels in vertebrates involved in syndromes of clinical relevance, such as epileptic activity in hippocampus and gamma-conopeptide
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                                                                                                                                                                                                                                               present invention describes gamma-carboxylated conopeptides derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conopeptide, gamma-conopeptide, venom, cone snail; cation channel; epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel
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                                                                  Walker C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Type: P Check: 6382
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Cruz LJ, Imperial J, Colledge C;
                                                                  Burlingame AL, Olivera BM, Wal
uz LJ, Imperial J, Colledge C;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LCPDYTEPCS HAHECCSWNC YNGHCT
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                                                                                     Cruz LJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ||AA SEQUENCE | 1.0
|ID AAY24|30 standard; peptide; 32
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(UYVR-) UNIV VRIJE.
(UTAH ) UNIV UTAH RES FOUND.
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            (UYVR-) UNIV VRIJE.
(REGC ) UNIV CALIFORNIA
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                                                                    Kits KS,
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                                                                                     Shetty R,
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                                                                                                                        WPI; 1999-418708/35
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                                                                  Fainzilber M,
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13-SEP-1999
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                                                                                     Walkins M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAY24130;
                                                                                                                                                                            channels
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Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
cone snails and their derivatives are synthetic. The peptides modulate slow inward carion channels in vertebrates involved in syndromes of clinical relevance, such as epileptic activity in hippocampus and pacemaker potentials in heart muscle. The present sequence represents a gamma-conopeptide. (Updated on 27-AUG-2003 to correct OS field.)
                                                                                                                                                                                                                                                      Conopeptide; gamma-conopeptide; venom; cone snail; cation channel; epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
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                                                                                               Check: 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note= "optionally gamma-carboxyglutamic acid"
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uz LJ, Imperial J, Colledge
                                                                                               Type: P
                                                                                                                                                                                                                                                                                                                                                     note= "optionally 6-bromo-Trp"
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                                                                                               20, 2007 16:53
                                                                                                                       DCTSWFGRCT VNSECCSNSC DQTYCELYAF PS
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                                                                                                                                                         peptide; 39
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                                                                                                                                             SEQUENCE 1.0
AAY24109 standard;
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                                                                                              AAY24130 Length: 32
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                                                                       Sequence 32 AA;
                                                                                                                                                                                                                                                                                           Conus textile.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Modified-site
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO9930732-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-DEC-1998;
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                                                                                                                                                                                                                             Conopeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Walkins M,
                                                                                                                                                                                                                                                                                                        Synthetic.
                                                                                                                                                                               AAY24109;
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(REGC )
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The present invention describes gamma-carboxylated conopeptides derived from cone snail venom. The gamma-conopeptides and their propeptides are

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the conotoxin precursors. The mature peptide sequences were discovered by obtaining conotoxin cDNA sequences from mRNA from the brocade cone shell (Conus textile) or the line cone shell (Conus striatus). The cDNA sequences were used to determine the conotoxin precursor protein sequences, and the sequences of the mature conotoxin peptides were inferred from the precursor sequences. The mature conotoxin peptides can be obtained via chemical synthesis or by in vitro gene expression. Conotoxins inhibit the function of neurons and muscle cells. Certain conotoxins interfere with synaptic transmission, while others act on muscle or at the neuromuscular junction. The 14 novel conotoxins have unique receptor specificity and affinity, so can be used as screening tools to identify new drugs. Conotoxins that all drugs. Conotoxins conditions and mature conotoxins and affinity, so can be used as screening tools to identify new drugs. Conotoxin #11 (AAY87540) may be used for pain relief. Sequences AAY87520, AAY87521, AAY87520, AAY87530, AAY87530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        invention relates to 14 novel mature conotoxin peptides from marine .1s (Conus species); conotoxin precursor proteins; and cDNAs encoding
useful as agonists of neuronal pacemaker calcium channels. The conopeptides are naturally available in minute amounts in the venom of cone snails and their derivatives are synthetic. The peptides modulate slow inward cation channels in vertebrates involved in syndromes of clinical relevance, such as epileptic activity in hippocampus and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mature conotoxin; brocade cone shell; line cone shell; drug screening; neuronal inhibitor; muscle inhibitor.
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                                                                                                                                                                                                                                                                Check: 9205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conotoxin peptide from brocane cone shells useful as analgesic.
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                                                                                                                                                                                                                                                             Type: P
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                                                                                                                                                                                                                                                                                                                     WWRWGGCMAW FGLCSRDSEC CSNSCDVTRC ELMPFPPDW
                                                                                                                                                                                                                                                             February 20, 2007 16:53
                                                                                                                                           pacemaker potentials in heart muscle
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ID AAY87530 standard; peptide; 24 AA.
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                                                                                                                                                                                                                                                                                                                                                                                                         standard; peptide; 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99CN-00106070.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mature conotoxin peptide #7
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                                                                                                                                                                                                                                                                Length: 39
                                                                                                                                                                                                       Sequence 39 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Huang P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 24 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-APR-1999;
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                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE AAY87532
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Mcintosh JM;

Hillyard DR,

Cartier GE, Watkins M,

Jones RM;

99US-0173754P.

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Cone snail; O-superfamily conotoxin; sodium channel; disease; demyelinating disease; multiple sclerosis; funtingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
                                                                                                                                                                                                                                                                                                                                                                                                                           Cone snail O-superfamily conotoxin, Af6.10.
                                                                                                                                                                                                                                                                                                                                                                                  AAU05930 standard; peptide; 24 AA
                                                                                                                                                                                      Claim 1A; Page 4; 20pp; Chinese.
                                                                                                               99CN-00106070
                    Mature conotoxin peptide #6
                                                                                                                                                                                                                                                                                                                                                                                                              24-OCT-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ischaemia; stroke; pain.
                                                                                                                                                         WPI; 2000-351193/31.
                                                                                                                                                                                                                                                                                                                                               AAY87530 Length: 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conus ammiralis
                                                                                                                                                                                                                                                                                                                                Sequence 24 AA;
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                                                                                                                                            Huang
                                                                                                 30-APR-1999;
                                                                                                               30-APR-1999;
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                                                                     CN1237584-A.
                                                                                   08-DEC-1999
                                                        Conus sp.
                                                                                                                                           Lu B,
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New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple
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                                                          26-JUN-2000; 2000US-0214263P.
20-JUL-2000; 2000US-0219440P.
27-OCT-2000; 2000US-0243412P.
28-DEC-2000; 2000WO-US035431.
                                                                                                                                              (UTAH ) UNIV UTAH RES FOUND.
(COGN-) COGNETIX INC.
                                                                                                                                                                                                                                                                         WPI; 2001-418352/44.
                                           30-DEC-1999;
                                                                                                                                                                                                             Olivera BM,
                                                                                                                                                                                                                                  Layer RT,
                                                                                                                                                                                                                                                                                                                                                             sclerosis.
  smalls (Connus species); conotoxin precursor proteins; and cDNAs encoding the conotoxin precursors. The mature peptide sequences were discovered by obtaining conotoxin DNAs sequences from mANA from the broaded cone shell (Conus textile) or the line cone shell (Conus striatus). The cDNA sequences were used to determine the conotoxin precursor protein sequences were used to determine the conotoxin precursor protein sequences were used to determine the conotoxin peptides were inferred from the precursor sequences. The mature conotoxin peptides can be obtained via chemical synthesis or by in vitro gene expression. Conotoxins inhibit the function of neurons and muscle cells. Certain muscle or at the neuromuscular junction. The 14 novel conotoxins have unique receptor specificity and affinity, so can be used as screening tools to identify new drugs. Conotoxins #11 (AAX87540) may be used for pain relief. Sequences AAX87522, AAX87522, AAX87526, AAX87526, AAX87530, AAX87530, AAX87534, AAX87534, AAX87530, AAX87534, AAX87534, AAX87534, AAX87534, AAX87536, AAX87530, AAX87536, Expectively
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            invention relates to 14 novel mature conotoxin peptides from marine
                                                                                                     Mature conotoxin; brocade cone shell; line cone shell; drug screening; neuronal inhibitor; muscle inhibitor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conotoxin peptide from brocane cone shells useful as analgesic
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                                                                                                                                                                                                                                                                                                                                                                                 (BIOL-) BIOLOGICAL ENG INST ACAD MILITARY MEDICI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CYDGGTSCDS GIQCCSGWCI FVCF
                                                                                                                                                                                                                                                                                                   99CN-00106070
                       18-JUL-2000 (first entry)
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The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, affectoris, progressive multifocal leukocoephalopathy, acute transverse weelits, progressive multifocal leukocoephalopathy, sub caute transverse cc are merchannel disorders, so compression, entrapment neuromyelitis, polisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar cardiac arrhythmias and congestive heart failure, reactive gliosis, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotrasmaitter disorders (i.e. Baton-Lambert syndrome) and reversal of curare and other neuromuscular blocking drugs. The neurological disorder is a seizure, preferably one associated with stroke, cerebrovascular accident, brain or spinal cord trauma, with hypoxia, anoxia or ischaemia. The alsorder is pain i.e. migraine, compression, persistent pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorder. A conocoxin completed to a pain causing event, and to treat disorders associated with rackine of is useful to alleviate pain in a mammal in a mammal in a channel such as and and cerebral is channel and cerebral ischaemia and cenamia and cenamial in a mammal in a mammal in a mannel associated with rackitable membranes by activating and cenamia and Cone snail; O-superfamily conotoxin; sodium channel; demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; February 20, 2007 16:53 Type: P Check: 2321 Cone snail O-superfamily conotoxin, Delta-Striatus 106. Ź CXDGGTSCNT GNQCCSGXCI FLCL AAU05972 standard; peptide; 27 24-OCT-2001 (first entry) ischaemia; stroke; pain. AAU05930 Length: 24 Sequence 24 AA; Conus striatus ! AA_SEQUENCE 1.0 AAU05972; ischaemia; stroke; pain.

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The sequence is a count shear or supericantly concourn peptides are useful for regulating the flow of socium through sodium channels in an individual and the treatment or prevention of disorders channels in an individual and the treatment or prevention of disorders channels in an individual and the treatment or prevention of disorders demyelitated with voltage gated in channel disorders, including demyelitation dispensation of disorders, including the consequence and electrosing paracephalomyelitis (SSPE), metachromatic leukodystrophy, electrosing paracephalomyelitis (SSPE), metachromatic leukodystrophy, pelizaeus Merzbacher disease, spinal cord injury, botulinum toxin nerve palsy, and carpal tunnel syndrome, cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive cardiac arrhythmias and other neuromuscular blocking drugs. The neurological disorder is a seizure, preferably one associated with reversal of curare and other neuromuscular blocking drugs. The neurological disorder is a neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myccardial infarct, physical trauma, drownings, suffocation, perinatal cerebrovascular accident, brain or spinal cardiac aspectate pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorder. A conotoxin caute pain, persistent pain, neuropathic pain, in a mammal in pain or about to be subjected to a pain causing event, and to treat disorders associated with cardical depolarisation of excitable membranes by activating a Karp channel, the disorders include cardiac, ocular and cerebral isohaemia and
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence is a cone snail O-superfamily conotoxin peptide. The
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ID _AAU06037 standard; peptide; 31 AA.
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                                                                                                                                                                                                                                                                                                       26-JUN-2000; 2000US-02194263P.
20-JUL-2000; 2000US-0219440P.
27-OCT-2000; 2000US-0243412P.
                                                                                                                                                                              28-DEC-2000; 2000WO-US035431.
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WO200149312-A2.
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                                                                                       12-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sclerosis.
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The sequence is a cone snail O-superfamily conotoxin propeptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including decases i.e. multiple sclerosis optic neuromyelitis, demyelinating diseases i.e. multiple sclerosis optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse myelitis, progressive multifocal leukoencephalopathy, sub acute transverse myelitis, progressive multifocal leukoencephalopathy, sub acute pelizabener disease, spinal cord injury, boculinum toxin possoning, Huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Baton-Lambert syndrome) and creversal of curare and other neuromuscular blocking drugs. The epilepsy. The neurological disorder is a neurotoxic injury is associated with the stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal caute pain, persistent pain, neuropathic pain, nociceptive pain. The disorder is fufflammation or a cardiovascular disorder; is pain in each about to be caute pain, persistent pain, neuropathic pain, no accident or about to be considered to a pain causing event, and to treat disorders associated with arbanent, the disorders include cardiac, ocular and cerebral isocheme and arbanement and cerebral associated with arbanement, the disorders include cardiac, ocular and cerebral associated with arbanement.
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ID AAU06044 standard; peptide; 26 AA.
                                                                                                                                                                                                                             26-JUN-2000; 2000US-0214263P.
20-JUL-2000; 2000US-0219440P.
27-OCT-2000; 2000US-0243412P.
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                                                                                                                                                                                                                                                                                                              (UTAH ) UNIV UTAH RES FOUND. (COGN-) COGNETIX INC.
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                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-418352/44.
                                         Conus circumcisus.
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                                                                                 WO200149312-A2.
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                                                                                                                          12-JUL-2001.
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The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium conforms are useful for regulating the flow of sodium through sodium conforms in individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, conformation to the sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy, sub acute fasease, spinal cord injury, botulinum toxin poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Baton-Lambert syndrome) and creversal of curare and other neuromyelar blocking drugs. The neurological disorder is a seizure, preferably one associated with epilepsy. The neurological disorder is a seizure, preferably one associated with stroke, cerebrovascular accident, brain or spinal cord trauma, cylengrated infarct, physical trauma, drownings, suffocation, perinatal cylengratent pain, neuropathic pain, no spinal cord trauma, acute pain, persistent pain, neuropathic pain, no spinal cardiace associated disorder is inflammation or a cardiovascular disorder: A conotoxin cylengrated of is useful to alleviate pain in a mammal in pain or a bout to be subjected to a pain causing event, and to treat disorders associated with athematical depolarisation of excitable membranes by activating and creaming and contaring and cerebral isochemia and cerebral isochemia and
                  Cone snail; O-superfamily conotoxin; sodium channel; dease; dalease; multiple sclerosis; Muntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple
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2000US-0214263P.
2000US-0219440P.
2000US-0243412P.
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                                                                                                       ischaemia; stroke; pain.
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                                                                                                                                                    Conus circumcisus.
                                                                                                                                                                                             WO200149312-A2
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Sequence 26 AA;

Type: P Check: 5060 February 20, 2007 16:53 AAU06044 Length: 26

CIXSGDLCFX SDHIQCCNAK CAFACL

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AAU06047;
  SXS
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Cone snail; O-superfamily conotoxin; sodium channel; demyelinating disease; multiple sclerosls; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; Watkins M, Hillyard DR, Mcintosh JM; Cone snail O-superfamily conotoxin propeptide, Cr6.7. 30-DEC-1999; 99US-0173754P. 26-JUN-2000; 2000US-0214263P. 20-JUL-2000; 2000US-029440P. 27-OCT-2000; 2000US-0243412P. 28-DEC-2000; 2000WO-US035431. (UTAH) UNIV UTAH RES FOUND 24-OCT-2001 (first entry) Cartier GE, ischaemia; stroke; pain. (COGN-) COGNETIX INC Layer RT, Jones RM; WPI; 2001-418352/44. Conus circumcisus. N-PSDB; AAS11011 WO200149312-A2. Olivera BM, 12-JUL-2001

New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis.

Claim 15; Page 91; 277pp; English

Sequence 31 AA;

AAU06047 Length: 31 February 20, 2007 16:53 Type: P Check: 6984

NRLSWCIPTG DLCPPSDHIQ CCSGKCTFVC M

demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; Mcintosh JM; O-superfamily conotoxin; sodium channel; Watkins M, Hillyard DR, Cone snail O-superfamily conotoxin, Cr6.7. !!AA_SEQUENCE 1.0 ID AAU06048 standard; peptide; 27 AA. 28-DEC-2000; 2000WO-US035431. 26-JUN-2000; 2000US-0214263P. 20-JUL-2000; 2000US-0219440P. 27-OCT-2000; 2000US-0243412P. (UTAH) UNIV UTAH RES FOUND. 24-OCT-2001 (first entry) Cartier GE, ischaemia; stroke; pain. (COGN-) COGNETIX INC WPI; 2001-418352/44. Jones RM; Conus circumcisus. WO200149312-A2. 30-DEC-1999; snail; Olivera BM, 12-JUL-2001 Layer RT, AAU06048; Cone

New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis.

Claim 2; Page 92; 277pp; English.

controlled are useful for regulating the flow of sociam through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including channels in an individual and channel disorders, including the classeminated encephalomyelitis, adrenoleukodystrophy, acute transverse compelitis, progressive multifocal leukodystrophy, sub acute transverse carbing panacephalomyelitis (SSPE), metachromatic leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin cording arrhythmias and compession, entrapment neuropathies i.e. cardiac arrhythmias and compession, entradient disorders, i.e. cardiac arrhythmias and compession, coratio-ardiac disorders, i.e. cardiac arrhythmias and compession, coraine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuromecular blocking drugs. The neurological disorder is a seizure, preferably one associated with epiders, cerebrovascular accident, brain or spinal cord trauma, with stroke, cerebrovascular accident, brain or spinal cord trauma, mycardial infarct, physical trauma, drownings, suffocation, perianted applyxia or hypoglycaemic events. The disorder is infarmatal asphyxia or hypoglycaemic events. The disorder is an eardoxy and in or spinal cord disorder is infarmation or a cardiovascular in a ca peptide of is useful to alleviate pain in a mammal in pain or about to be subjected to a pain causing event, and to treat disorders associated with radical depolarisation of excitable membranes by activating a KATP channel, the disorders include cardiac, ocular and cerebral ischaemia and sequence is a cone snail O-superfamily conotoxin peptide. The

Sequence 27 AA;

AAU06048 Length: 27 February 20, 2007 16:53 Type: P Check: 8247

XCIXTGDLCF XSDHIQCCSG KCTFVCM

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demyelinating disease, multiple sclerosis, Huntingdon's disease, neuropathy, carpal tunnel syndrome, cardiovascular disorder, congestive heart failure, cancer; immunosuppression; epilepsy; asthma,
                                                snail; O-superfamily conotoxin; sodium channel;
                                      Cone snail O-superfamily conotoxin propeptide, 06.4.
!!AA_SEQUENCE 1.0
ID AAU05953 standard; peptide; 32 AA.
                            (first entry)
                                                                       ischaemia; stroke; pain.
                           24-OCT-2001
                 AAU05953;
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28-DEC-2000; 2000WO-US035431 Conus obscurus. WO200149312-A2. 12-JUL-2001.

30-DEC-1999; 99US-0173754P. 26-JUN-2000; 2000US-0214263P. 20-JUL-2000; 2000US-0219440P. 27-OCT-2000; 2000US-0243412P.

(UTAH) UNIV UTAH RES FOUND.

Watkins M, Hillyard DR, Mcintosh JM; Cartier GE, (COGN-) COGNETIX INC Jones RM; Olivera BM, Layer RT,

WPI; 2001-418352/44. N-PSDB; AAS10964. New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis.

Claim 15; Page 66; 277pp; English.

The sequence is a cone snail O-superfamily conotoxin propeptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demonstrated encephalomyelitis, darenoleukodystrophy, acute transverse disseminated encephalomyelitis, adrenoleukodystrophy, sub acute transverse myelitis, progressive multifocal leukoencephalopathy, sub acute transverse scherosing panecephalomyelitis (SSPE), metachromatic leukodystrophy, eplizacus-Merzbacher disease, spinal cord injury, botulinum toxin poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, cardiac arrhythmias and congestive heart failure, reactive gliosis, cardiac arrhythmias and congestive heart failure, reactive gliosis, cyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuromuscular blocking drugs. The neurological disorder is a neurotoxic injury associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal asphyxia or hypoglycaemic events. The disorder is pain in engraine, disorder is pain, persistent pain, neuropathic pain, neuropathic pain, neuropathic pain, neuropathic pain, neuropathic of is useful to alleviate pain in amammal in pain or about to be cure pain, and causing event, and to treat disorders associated with

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The sequence is a cone snail O-superfamily conotoxin propeptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including CG demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse disseminated encephalomyelitis (schencephalopathy, sub acute transverse compensation multiple sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy, polisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuromacular blocking drugs. The neurological disorder is a neurotoxic injury associated with the proxis anoxia or ischaemia. The neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal
                 and
                                                                                                                                                                                                                                                                                                                                                            Cone snail; O-superfamily conotoxin; sodium channel; dafaease; demyelinating disease; multiple solerosis; funtingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
of excitable membranes by activating a KATP include cardiac, ocular and cerebral ischaemia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mcintosh JM;
                                                                                                               Check: 9409
                                                                                                                                                                                                                                                                                                                         Cone snail O-superfamily conotoxin propeptide, Cr6.6.
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                                                                                                               Type: P
                                                                                                             February 20, 2007 16:53
                                                                                                                                                  RSKRCLVYGT PCDWLTIAGM ECCSKKCFMM
                                                                                                                                                                                    ||AA_SEQUENCE 1.0
|ID AAU06033 standard; peptide; 31 AA.
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20-JUL-2000; 2000US-0219440P.
27-OCT-2000; 2000US-0243412P.
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                                                                                                                                                                                                                                                                                                                                                                                                                                       ischaemia; stroke; pain
 radical depolarisation channel, the disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (COGN-) COGNETIX INC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conus circumcisus.
                                                                                                               AAU05953 Length: 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-PSDB; AAS11004
                                                                            Sequence 32 AA;
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                                                                                                                                                                                                                                                 AAU06033;
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                                   asthma
                                                                                                                                                                                                                                                 SXSSS
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The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse myelitis, progressive multifocal leukoencephalopathy, sub acute transverse clerosing panecephalomyelitis (SEPS), metachromatic leukodystrophy, pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin colerosing huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuronular blocking drugs. The neurological disorder is a seizure, preferably one associated with asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine, acute pain, persistent pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorder. A conocoxin peptide of is useful to alleviate pain in a mammal in pain or about to be subjected to a pain causing event, and to treat disorders associated with radical depolarisation of excitable membranes by activating a KATP channel, the disorders include cardiac, ocular and cerebral ischaemia and demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple ξ P Check: 6147 Mcintosh snail; O-superfamily conotoxin; sodium channel; Hillyard DR, Type: Cone snail O-superfamily conotoxin, Cr6.5A. February 20, 2007 16:53 NRLSRCIPSG DLCFPSDHIQ CCNAKCAFVC Watkins M, Ź Claim 2; Page 89; 277pp; English. SEQUENCE 1.0 AAU06038 standard; peptide; 26 30-DEC-1999; 99US-0173754P. 26-JUN-2000; 2000US-0214263P. 20-JUL-2000; 2000US-0219440P. 27-OCT-2000; 2000US-0243412P. 28-DEC-2000; 2000WO-US035431 (UTAH) UNIV UTAH RES FOUND 24-OCT-2001 (first entry) GE, ischaemia; stroke; pain. , Cartier Jones RM; INC WPI; 2001-418352/44. Conus circumcisus. (COGN-) COGNETIX Length: 31 Sequence 31 AA; WO200149312-A2. BM, 12-JUL-2001. Olivera BM, Layer RT, sclerosis. AAU06038; asthma Cone AAU06033 888888888888888

epilepsy. The neurological disorder is a neurotoxic injury associated with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine, acute pain, persistent pain, neuropathic pain, mocieptive pain. The disorder is inflammation or a cardiovascular disorder. A conotoxin peptide of is useful to alleviate pain in a mammal in pain or about to be subjected to a pain causing event, and to treat disorders associated with radical depolarisation of excitable membranes by activating a KATP channel, the disorders include cardiac, ocular and cerebral ischaemia and asthma

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Sequence 26 AA;

February 20, 2007 16:53 Type: P Check: 5654 AAU06038 Length: 26

1 CIXSGDLCFX SDHIQCCSAK CAFVCL

Cone snail O-superfamily conotoxin, Cr6.6C. Ź ||AA_SEQUENCE 1.0 |ID AAU06046 standard; peptide; 27 (first entry) snail; O-superfamily 24-OCT-2001 AAU06046;

demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; conotoxin; sodium channel; ischaemia; stroke; pain.

Conus circumcisus.

WO200149312-A2.

28-DEC-2000; 2000WO-US035431, 12-JUL-2001

99US-0173754P. 26-JUN-2000; 2000US-0214263P. 20-JUL-2000; 2000US-0219440P. 30-DEC-1999;

27-OCT-2000; 2000US-0243412P.

(UTAH) UNIV UTAH RES FOUND. (COGN-) COGNETIX INC.

Hillyard DR, Watkins M, Cartier GE, Olivera BM, Carur

Mcintosh JM;

WPI; 2001-418352/44.

New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis.

Claim 2; Page 91; 277pp; English.

Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin yofsoning, Huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse myelitis, progressive multificoal leukoencephalopathy, sub acute sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,

dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuromuscular blocking drugs. The neurological disorder is a seizure, preferably one associated with neurological disorder is a neurotoxic injury associated with hypoxia, anoxia or ischaemia. The neurotoxic injury associated with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal asphyxia or hypoglycaemic events. The disorder is pain, neofceptive pain. The disorder is inflammation or a cardiovascular disorder. A conotoxin peptide of is useful to alleviate pain in a mammal in pain or about to be subjected to a pain causing event, and to treat disorders associated with channel, the disorders include cardiac, ocular and cerebral ischaemia and cocaine addiction,

Sequence 27 AA;

AAU06046 Length: 27 February 20, 2007 16:53 Type: P Check: 7563

XCIXSGDLCF XSDHIQCCNA KCAFVCL

AAU06052 standard; peptide; 27 AA. ! AA SEQUENCE 1.0

AAU06052;

(first entry) 24-OCT-2001

Cone snail O-superfamily conotoxin, Sm6.5.

Cone snail; O-superfamily conotoxin; sodium channel; deagelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; neuropathy, carpal tunne congestive heart failure ischaemia; stroke; pain.

Conus stercusmuscarum.

WO200149312-A2.

12-JUL-2001

28-DEC-2000; 2000WO-US035431.

30-DEC-1999; 99US-0173754P. 26-JUN-2000; 2000US-0214263P. 20-JUL-2000; 2000US-0219440P.

27-OCT-2000; 2000US-0243412P

(UTAH) UNIV UTAH RES FOUND.

COGNETIX INC. (COGN-)

Hillyard DR, Watkins M, Cartier GE, Jones RM; Olivera BM, Layer RT,

Mcintosh JM;

WPI; 2001-418352/44.

New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis.

Claim 2; Page 93; 277pp; English.

The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regularing the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, disorders myelitis, progressive multifocal leukoencephalopathy, sub acute sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,

poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiava disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Baton-Lambert syndrome) and reversal of curare and other neuromuscular blocking drugs. The neurological disorder is a selaure, preferably one associated with sproxia, anoxia or ischaemia. The neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal capply and propalycaemic events. The disorder is pain i.e. migraine, authorize pain, persistent pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorder. A conotoxin subjected to a pain causing event, and to treat disorders associated with radical depolarisation of excitable membranes by activating a KATP channel, the disorders include cardiac, ocular and cerebral ischaemia and

Sequence 27 AA;

February 20, 2007 16:53 Type: P Check: 7832 AAU06052 Length: 27

1 XCIXSGXLCP RSDHIQCCSA KCAFVCL

!!AA_SEQUENCE 1.0 ID AAU06019 standard; peptide; 29 AA. (first entry) (revised) 06-AUG-2003 24-OCT-2001 AAU06019;

Cone snail O-superfamily conotoxin propeptide, Ac6.1.

Cone snail; O-superfamily conotoxin; sodium channel; demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; stroke; pain. ischaemia;

Conus sp.

WO200149312-A2.

12-JUL-2001

28-DEC-2000; 2000WO-US035431.

99US-0173754P 2000US-0214263P. 2000US-0219440P. 27-OCT-2000; 2000US-0243412P. 30-DEC-1999; 26-JUN-2000;

(UTAH) UNIV UTAH RES FOUND. COGNETIX INC. COGN-)

Mcintosh JM; Hillyard DR, Watkins M, Cartier GE, Jones RM; BW, Layer RT, Olivera

WPI; 2001-418352/44. N-PSDB; AAS10997.

New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple Claim 15; Page 84; 277pp; English. sclerosis.

The sequence is a cone snail O-superfamily conotoxin propeptide. The peptides are useful for regulating the flow of sodium through sodium

channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including chaseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse myelitis, progressive multifocal leukoencephalopathy, sub acute capalitis, progressive multifocal leukoencephalopathy, sub acute transverse sclerosing panecephalomyelitis (SSPB), metachromatic leukodystrophy, corpression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive glossis.

Cordiac arrhythmias and congestive heart failure, reactive glossis, cardiotacarrhythmias and congestive heart failure, reactive glossis.

Cordiac arrhythmias and congestive heart failure, reactive glossis.

Cordiac disorder is a seizure, preferably one associated with the stroke, cerebrovascular accident, brain or spinal cord trauma.

Cordiac disorder is nifiammation or acardiacy suffocation, perinatal asphyxia or hypoglycaemic events. The disorder is pain in a mammal in pain or about to be coute pain, persistent pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiacvascular disorder is excitable membranes by activating a KATP channel, the disorders include cardiac, ocular and cerebral ischaemia cordiac.

Sequence 29 AA;

Type: P Check: 2540 AAU06019 Length: 29 February 20, 2007 16:53

LRWCIPRGDL CFPSDRIQCC SGKCTFVCM

||AA SEQUENCE 1.0 |ID AAU06036 standard; peptide; 27 AA.

AAU06036;

24-OCT-2001 (first entry)

Cone snail O-superfamily conotoxin, Cr6.5.

Cone snail; O-superfamily conotoxin; sodium channel; demyelinating disease; multiple sclerosis; Huntingdon; a disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma;

ischaemia; stroke; pain.

Conus circumcisus.

WO200149312-A2.

12-JUL-2001.

28-DEC-2000; 2000WO-US035431.

30-DEC-1999; 99US-0173754P. 26-JUL-2000; 2000US-0214263P. 20-JUL-2000; 2000US-0219440P. 27-OCT-2000; 2000US-0243412P.

(UTAH) UNIV UTAH RES FOUND. (COGN-) COGNETIX INC.

Mcintosh JM; Watkins M, Hillyard DR, Cartier GE, Olivera BM, Cartier Layer RT, Jones RM;

WPI; 2001-418352/44.

New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple

sclerosis.

The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including diseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse myelitis, progressive multiple sclerosis, optic neuromyelitis, complete myelitis, progressive multiple sclerosis, optic neuromyelitis, optic neuromyelitis, sclerosing panecephalomyelitis (SSPB), metachromatic leukodystrophy, pelizaeus-Merzbacher disease, apinal cord injury, botulinum toxin conterve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive cardiac arrhythmias and congestive heart failure, reactive gliosis, chyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuromyecular blocking drugs. The centrological disorder is a selutre, preferably one associated with hypoxia, anoxia or ischaemia. The encutoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, approarmatial infarct, physical trauma, drownings, suffocation, perinatal asphy, persistent pain, neuropathic pain, nociceptive pain. The disorder is pain i.e. migraine, caute pain, persistent pain, neuroparance asphyzian. peptide of is useful to alleviate pain in a mammal in pain or about to be subjected to a pain causing event, and to treat disorders associated with radical depolarisation of excitable membranes by activating a KATP channel, the disorders include cardiac, ocular and cerebral ischaemia and Claim 2; Page 89; 277pp; English

Sequence 27 AA;

AAU06036 Length: 27 February 20, 2007 16:53 Type: P Check: 7658

XCIXSGDLCF XSDHIQCCSA KCAFVCL

!!AA_SEQUENCE 1.0 ID AAU06039 standard; peptide; 31 AA. 24-OCT-2001 (first entry) AAU06039;

Cone snail O-superfamily conotoxin propeptide, Cr6.6A.

Cone snail; O-superfamily conotoxin; sodium channel; demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; ischaemia; stroke; pain.

Conus circumcisus.

WO200149312-A2.

12-JUL-2001

28-DEC-2000; 2000WO-US035431. 99US-0173754P. 30-DEC-1999;

26-JUN-2000; 2000US-0214263P. 27-OCT-2000; 2000US-0243412P

(UTAH) UNIV UTAH RES FOUND. (COGN-) COGNETIX INC

Mcintosh JM; Hillyard DR, Watkins M, Cartier GE, Jones RM; Olivera BM, Layer RT,

WPI; 2001-418352/44. N-PSDB; AAS11007

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The sequence is a count shear or superiorant properties. The sequence is a count shear of channels in an individual and the treatment or prevention of disorders channels in an individual and the treatment or prevention of disorders channels in an individual and the treatment or prevention of disorders channels in an individual and the treatment or prevention of disorders cassociated with voltage gated ion channel disorders; including demyelitating diseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse compension multifocal leukochespathophy, sub acute transverse sclerosing panecephalomyelitis (SSPB), metachromatic leukodystrophy, pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin nerve palsy, and carpal tunnel syndrome, cardiovascular disorders; i.e. cardiac arrhythmias and congestive heart failure, reactive gliogis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive cardiac arrhythmias and congestive heart failure, reactive gliogis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive caversal of curare and other neuromuscular blocking drugs. The neurological disorder is a seizure, preferably one associated with stroke, cerebrovascular acidement, brain or spinal cord trauma, with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated with stroke, cerebrovascular acidemic, brain or spinal cord trauma, acute pain, persistent pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorder. A conotoxin compension of subjected to a pain causing event, and to treat disorders associated with capinal depolarisation of excitable membranes by activating a KATP contoner is not an order of cular and cerebral isochaemia and
                         New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple
                                                                                                                                                                                                        sequence is a cone snail O-superfamily conotoxin propeptide.
                                                                                                                                         Claim 15; Page 90; 277pp; English.
                                                                                       sclerosis.
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Type: P Check: 5997 AAU06039 Length: 31 February 20, 2007 16:53

Sequence 31 AA;

1 NRLSRCIPSG DLCFPSDHIQ CCNAECAFVC L AAU06040 standard, peptide; 26 AA I AA_SEQUENCE

(first entry) 24-OCT-2001 AAU06040;

Cone snail O-superfamily conotoxin, Cr6.6A.

demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; Cone snail; O-superfamily conotoxin; sodium channel; ischaemia; stroke; pain.

Conus circumcisus.

WO200149312-A2.

12-JUL-2001

28-DEC-2000; 2000WO-US035431

26-JUN-2000; 2000US-0214263P. 20-JUL-2000; 2000US-0219440P. 27-OCT-2000; 2000US-0243412P. 99US-0173754P 30-DEC-1999;

(UTAH) UNIV UTAH RES FOUND. (COGN-) COGNETIX INC.

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The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demonstrated disease; employed solved with solved solved with voltage gated ion channel disorders, oct constraints of disease; disease, spinal cord injury, botulinum toxin poisoning, Huntington's, compression, entrapment neuropathies i.e. corver palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive glossis. Or hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuromuscular blocking drugs. The neurological disorder is a seizure, preferably one associated with cyllapsy. The neurological disorder is a neurotoxic injury is associated with the stroke, creebrovascular accident, brain or spinal cord trauma, mycoardial infarct, physical trauma, drownings, suffocation, persistent pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorder is pain i.e. migraine, caute pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorder as sociated with contoxin or spinal counter pain, neuropathic pain, nociceptive pain. The disorder is not a pain causing event, and to treat disorders associated with cradical depolarisation of excitable membranes by activating a RATP channel, the disorders include cardiac, ocular and cerebral isochemia and
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                                                                                                           New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple
Mcintosh JM;
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Hillyard DR,
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Watkins M,
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                                                                                                                                                                                                      Claim 2; Page 90; 277pp; English.
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2000US-0214263P.
2000US-0219440P.
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26-JUN-2000; 2000US-0214263P.
20-JUL-2000; 2000US-02440P.
27-OCT-2000; 2000US-0243412P.
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                     Jones RM;
                                                                   WPI; 2001-418352/44
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                     Layer RT,
                                                                                                                                                              sclerosis.
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The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demoyalitis, demonstrates, including demoyalitis, darenoleukodystrophy, acute transverse disseminated encephalomyalitis, adrenoleukodystrophy, acute transverse contential panecephalomyalitis, adrenoleukodystrophy, acute transverse welltis, progressive multifocal leukoencephalopathy, sub acute palexosing panecephalomyalitis (SSPE), metachromatic leukodystrophy, copisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocalne addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and congestive heart failure, reactive gliosis, cardiac arrhythmias and other neuromuscular blocking drugs. The neurological disorder is a neurotoxic injury associated with hypoxia, anoxia or ischaemia. The neurotoxic injury associated with hypoxia, anoxia or ischaemia. The neurotoxic injury associated with hypoxia, anoxia or ischaemia, drownings, suffocation, perinatal applyxia or hypoglycaemic events. The disorder is pain i.e. migraine, caute palin, persistent pain, neuropathic pain, nociceptive pain, the disorder is inflammation or a cardiovascular disorder. A conotoxin peptide of is useful to alleviate pain in a mammal in pain or about to be subjected to a pain causing event, and to treat disorders associated with radical depolarisation of excitable membranes by activating a KATP channel, the disorders include cardiac, ocular and cerebral ischaemia and Cone snail; O-superfamily conotoxin; sodium channel; demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; ion New O-superfamily polypeptides useful for treating voltage gated ichannel disorders, including demyelinating diseases i.e. multiple Mcintosh JM; February 20, 2007 16:53 Type: P Check: 1895 Watkins M, Hillyard DR, Cone snail O-superfamily conotoxin, Tx6.8. AAU05980 standard; peptide; 24 AA Claim 2; Page 58; 277pp; English. CXDGGTGCDS GNQCCSGXCI FACL 28-DEC-2000; 2000WO-US035431. (UTAH) UNIV UTAH RES FOUND. (COGN-) COGNETIX INC. 24-OCT-2001 (first entry) Cartier GE, ischaemia; stroke; pain Jones RM; WPI; 2001-418352/44. AAU05922 Length: 24 Sequence 24 AA; Conus textile, 12-JUL-2001. Olivera BM, Layer RT, AAU05980; SEQUENCE 12-JUL-2001

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The sequence is a cone snail O-superfamily conotoxin peptide. The channels in an individual and the treatment or prevention of disorders associated with voltage gated ion Channel disorders, including associated with voltage gated ion Channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, despending diseases i.e. multiple sclerosis, optic neuromyelitis, despending diseases i.e. myelitis, progressive multifocal leukoencephalopathy, sub acute transverse myelitis, progressive multifocal leukoencephalopathy, sub acute pelizaeus-Merzbacher disease, spinal cord injury, boculinum toxin poisonning, Huntington's, compression, entrapment neuropathies i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive cardiac arrhythmias and congestive heart failure, reactive gliosis, chyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurolosuperssion, enternmuscular blocking drugs. The ceversal of curare and other neuromuscular blocking drugs. The currological disorder is a seizure, preferably one associated with epilepsy. The neurological disorder is a neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, mycoardial infarct, physical trauma, drownings, suffocation, perinatal caute pain, persistent pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorder. A conotoxin caute pain, persistent pain, neuropathic pain, no ciceptive pain. The disorder is inflammation or a cardiovascular disorders associated with capted to a pain causing event, and to treat disorders associated with archia enhance, the disorders include cardiac, ocular and cerebral isorders and and and cerebral isorders and and cerebral and cerebral associated with and the disorders include cardiac, ocular and cerebral isorders and context of the archia a
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                   26-JUN-2000; 2000US-0214263P.
20-JUL-2000; 2000US-0219440P.
27-OCT-2000; 2000US-0243412P.
99US-0173754P
                                                                                                                           (UTAH ) UNIV UTAH RES FOUND.
(COGN-) COGNETIX INC.
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30-DEC-1999;
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AAU05980 Length: 24 February 20, 2007 16:53 Type: P Check: 2589

CXDSGTSCNT GNQCCSGXCI FVCL

!!AA_SEQUENCE 1.0 ID AAU06002 standard; peptide; 27 AA. AAU06002;

Cone snail O-superfamily conotoxin, Im6.1.

(first entry)

24-OCT-2001

Cone snail; O-superfamily conotoxin; sodium channel; disease; demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; ischaemia; stroke; pain.

Conus imperialis.

WO200149312-A2.

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The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium contained in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demonstrated metaphalopathy, sub acute transverse contains an expension of disease. Spinal cord injury, bottling course multifocal leukoencephalopathy, sub acute myelitis, progressive multifocal leukoencephalopathy, sub acute contains arrhythmias and compession, entrapment neuropathies i.e. ulnar poisonning, Huntington's, compression, entrapment neuropathies i.e. ulnar cardiac arrhythmias and congestive heart failure, reactive gliosis, cardiac arrhythmias and congestive heart failure, reactive gliosis, chyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuromuscular blocking drugs. The curvological disorder is a seizure, preferably one associated with epilepsy. The neurological disorder is a neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal complements and promines. The disorder is pain and cardiace acute pain, neuropathic pain, neuropathic pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular and cerebral is escent to a bein causing event, and to treat disorders associated with refer the pain, persistent pain, neuropathic pain, neuropaice associated with cardical depolarisation of excitable membranes by activating a KATP chart disorders includes archiac, ocular and cerebral isoders and
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                                                                                                                                                                                                                                                               Watkins M, Hillyard DR, Mcintosh JM;
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                                                                                                       2000US-0214263P
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                                       28-DEC-2000; 2000WO-US035431
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(COGN-) COGNETIX INC.
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20-JUL-2000;
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Layer RT,
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The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demyelinish into voltage gated ion channel disorders, including demyelinish progressive multifocal selectosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse compelitis, progressive multifocal leukodystrophy, acute transverse sclorosing panecephalomyelitis (SSPE), metachromatic leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hypersylycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Baton-Lambert syndrome) and reversal of curare and other neuronuscular blocking drugs. The neurological disorder is a seizure, preferably one associated with hypoxia, anoxia or ischaemia. The neurotoxic injury associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal caphyxia or hypoglycaemic events. The disorder is pain i.e. migraine, acute pain, persistent pain, neuropathic pain, nociceptive pain. The disorder is an endiovascular disorder. A conocroxin capical capical accident pain, and to treat disorders associated with the disorder is all depolarisation of excitable membranes by activating a KATP channel the disorders in and to treat disorders associated with channel the disorders in and to treat disorders associated with channel the disorder in a mammal in and to treat disorders associated with channel the disorder in in a mammal in an accident in a mammal 
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ID AAU05924 standard; peptide; 24 AA.
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2000US-0214263P.
2000US-0219440P.
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20-JUL-2000;
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24-OCT-2001
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                         Conus ap.
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Cone snail O-superfamily conotoxin, Da6.1.
SEXSEEXEX
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Cone snail; O-superfamily conotoxin; sodium channel; demyelinating disease; multiple scleroslis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma;

ischaemia; stroke; pain. Conus sp

WO200149312-A2.

12-JUL-2001.

28-DEC-2000; 2000WO-US035431

30-DEC-1999; 26-JUN-2000;

2000US-0214263P

20-JUL-2000; 2000US-0219440P. 27-OCT-2000; 2000US-0243412P.

(UTAH) UNIV UTAH RES FOUND.

(COGN-) COGNETIX INC

Mcintosh JM; Watkins M, Hillyard DR, Cartier GE, Layer RT, Jones RM; Olivera BM,

WPI; 2001-418352/44.

ion O-superfamily polypeptides useful for treating voltage gated incl disorders, including demyelinating diseases i.e. multiple sclerosis. channel

Claim 2; Page 59; 277pp; English.

The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse myelitis, progressive multiple sclerosis, optic neuromyelitis, collecting panecephalomyelitis (SSPE), metachromatic leukodystrophy, pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar correct palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, correction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuromuscular blocking drugs. The neurological disorder is a seizure, preferably one associated with stroke, cerebrovascular accident, brain or spinal cord trauma, cord myocardal infarct, physical trauma, dravnings, suffocation, perinatal applyxia or hypoglycaemic events. The disorder is pain i.e. migraine, cutte pain, persistent pain, neuropathic pain, nociceptive pain, the point of disorder is inflammation or a cardiovascular in pain or about to be controled to a cardiovascular in pain or about to be subjected to a pain causing event, and to treat disorders associated with radical depolarisation of excitable membranes by activating a KATP channel, the disorders include cardiac, ocular and carebral ischaemia and asthma. (Updated on 06-AUG-2003 to correct OS field.) disorders associated with peptide of is useful to alleviate pain in a mammal in pain or about subjected to a pain causing event, and to treat disorders associated

Sequence 24 AA;

Type: P Check: 2357 AAU05924 Length: 24 February 20, 2007 16:53

CXDGGTGCDS GNQCCSGXCI FVCL

!!AA_SEQUENCE 1.0 ID _AAU05971 standard; peptide; 29 AA.

AAU05971;

AAU06045 standard; peptide; 31 AA

! AA_SEQUENCE 1.0

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The sequence is a cone snail O-superfamily conocoxin propeptide. The peptides are useful for regulating the flow of sodium through sodium confidence are useful for regulating the flow of sodium through sodium confidence associated with voltage gated ion Channel disorders, including associated with voltage gated ion Channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, defended with voltage gated ion channel disorders, including myelinating diseases i.e. multiple sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy, solitate myelitis, progressive multifocal leukoencephalopathy, sub acute transverse myelitis, progressive multifocal leukoencephalopathy, sub acute cardiac arrhythmias and congestive heart failury, boculinum toxin potsonning, Huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive glossis, cardiac hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurological disorder is a selaure, preferably one associated with enveloped disorder is a selaure, preferably one associated with enveloped anoxia anoxia or ischaemia. The neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myecardial infarct, physical trauma, drownings, suffocation, persistent pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorder is pain in a mammal in pain or a bout to be subjected to a pain causing event, and to tread disorders associated with arche subjected to a pain causing event, and to tread disorders associated with arche subjected to a pain causing event, and to tread disorders associated with arche subjected to a pain causing event, and culture pain and cerebral isoclate and celebral and celebral and celebral and celebral and celebral and c
                                                                                                                 demyelinating disease; multiple sclerosis; Huntingdon's disease;
neuropathy; carpal tunnel syndrome; cardiovascular disorder;
congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple
                                              Cone snail O-superfamily conotoxin propeptide, Delta-Striatus 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Watkins M, Hillyard DR, Mcintosh JM;
                                                                                                snail; O-superfamily conotoxin; sodium channel;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 15; Page 71; 277pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                             30-DEC-1999; 99US-0173754P.
26-JUN-2000; 2000US-0214263P.
20-JUL-2000; 2000US-021440P.
27-OCT-2000; 2000US-0243412P.
                                                                                                                                                                                                                                                                                                                                                                               28-DEC-2000; 2000WO-US035431.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 UNIV UTAH RES FOUND.
COGNETIX INC.
24-OCT-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cartier GE,
                                                                                                                                                                                           ischaemia, stroke, pain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Olivera BM, Cartier
Layer RT, Jones RM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-418352/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB; AAS10973
                                                                                                                                                                                                                                       Conus striatus.
                                                                                                                                                                                                                                                                                      40200149312-A2.
                                                                                                                                                                                                                                                                                                                                  12-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sclerosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (UTAH )
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                                                                                                  Sone
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Sequence 29 AA;

AAU05971 Length: 29 February 20, 2007 16:53 Type: P Check: 1909

LRWCIPSGDL CFRSDHIQCC SGKCAFVCL

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Cone snail; O-superfamily conotoxin; sodium channel; demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
                                 Cone snail O-superfamily conotoxin propeptide, Cr6.6C.
                                                                                                                                          30-DEC-1999; 99US-0173754P.
26-JUN-2000; 2000US-0214263P.
                                                                                                                             28-DEC-2000; 2000WO-US035431
                                                                                                                                                       20-JUL-2000; 2000US-0219440P
27-OCT-2000; 2000US-0243412P
                                                                                                                                                                           UTAH ) UNIV UTAH RES FOUND.
                    (first entry)
                                                                        ischaemia; stroke; pain
                                                                                                                                                                                  (COGN-) COGNETIX INC
                                                                                      Conus circumcisus.
                                                                                                  WO200149312-A2.
                    24-OCT-2001
                                                                                                                12-JUL-2001
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New O-superfamily polypeptides useful for treating voltage gated i channel disorders, including demyelinating diseases i.e. multiple

Mcintosh JM;

Watkins M, Hillyard DR,

Cartier GE,

Olivera BM, Layer RT,

Jones RM;

WPI; 2001-418352/44. N-PSDB; AAS11010.

Claim 15; Page 91; 277pp; English.

cuteriousing pattereptation/veilils (SSYE), meracincomatic leukoogstroppy,
Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
cardiac arrhythmias and congestive heart failure, reactive gliosis,
Chyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
dysfunction, neurotransmitter disorders (i.e. Eaton-lambert syndrome) and
reversal of curare and other neuromuscular blocking drugs. The
neurological disorder is a seizure, preferably one associated with
cepilepsy. The neurological disorder is a neurotoxic injury is associated
with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
with stroke, cerebrovascular accident, brain or spinal cord trauma,
myocardial infarct, physical trauma, drownings, suffocation, perinatal
coute pain, persistent pain, neuropathic pain, neuropathic pain, neuropathic pain, neuropathic pain, neuropathic pain, neuropathic pain, amammal in a mammal in a shortoxin
subjected to a pain causing event, and to treat disorder: a sociated with
radical depolarisation of excitable membranes by activating a Karp
channel, the disorders include cardiac, ocular and cerebral ischaemia and peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse myelitis, progressive multifocal leukoencephalopathy, sub acute sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy, The sequence is a cone snail O-superfamily conotoxin propeptide. sethma

Sequence 31 AA;

Type: P Check: 6172 February 20, 2007 16:53 AAU06045 Length: 31

NRLSWCIPSG DLCFPSDHIQ CCNAKCAFVC L -

demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; snail; O-superfamily conotoxin; sodium channel; Cone snail O-superfamily conotoxin, Tx6.10. | IAA SEQUENCE 1.0 | TAAU05932 standard; peptide; 25 AA. 28-DEC-2000; 2000WO-US035431. 24-OCT-2001 (first entry) ischaemia, stroke, pain. WO200149312-A2. Conus textile. 12-JUL-2001 AAU05932; Cone

Watkins M, Hillyard DR, Mcintosh JM; 30-DEC-1999; 99US-0173754P. 26-JUN-2000; 2000US-0214263P. 20-JUN-2000; 2000US-021940P. 27-OCT-2000; 2000US-0243412P. (UTAH) UNIV UTAH RES FOUND. (COGN-) COGNETIX INC. Cartier GE, Olivera BM, Cares. New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis.

WPI; 2001-418352/44.

Claim 2; Page 61; 277pp; English.

The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium confidence are useful for regulating the flow of sodium through sodium confidence associated with voltage gated ion channel disorders, including associated with voltage gated ion channel disorders, including deseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse myelitis, progressive multifocal leukoencephalopathy, sub acute transverse sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy, conference arrhythminas and compession, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis. Apperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, neurotransmitter disorders (i.e. Baton-Lambert syndrome) and cardiorate is a seizure, preferably one associated disorder is a seizure, preferably one associated with stroke, cerebrovascular accident, brain or spinal cord trauma, mycoaria, anoxia or ischaemia. The encrotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cardior accident, brain or spinal cardiorate pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorders associated with persistent pain, neuropathic pain, no about to be concerned by activating a KATP cadical depolarisation of excitable membranes by activating a KATP

channel, the disorders include cardiac, ocular and cerebral ischaemia and

Sequence 25 AA; ខ្លួន្តមូន

Type: P Check: 4641 February 20, 2007 16:53 AAU05932 Length: 25

CXDSGTSCNT GNQCCSGXCI FVSCL н

Cone snail; O-superfamily conotoxin; sodium channel; demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; Cone snail O-superfamily conotoxin, Cr6.6. AAU06034 standard; peptide; 26 AA 24-OCT-2001 (first entry) ischaemia; stroke; pain. !!AA_SEQUENCE 1.0 AAU06034;

WO200149312-A2.

Conus circumcisus.

12-JUL-2001.

28-DEC-2000; 2000WO-US035431.

30-DEC-1999; 99US-0173754P. 26-JUN-2000; 2000US-0214263P. 20-JUL-2000; 2000US-0219440P. 27-OCT-2000; 2000US-0243412P.

UTAH) UNIV UTAH RES FOUND COGN-) COGNETIX INC Mcintosh JM; Watkins M, Hillyard DR, Cartier GE, Jones RM; Olivera BM, Layer RT,

WPI; 2001-418352/44.

New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis.

Claim 2; Page 88; 277pp; English.

The sequence is a cone snail O-superfamily conotoxin peptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demonstrated with voltage gated ion channel disorders, including demonstrated encephalomyelitis, adrenoleukodystrophy, acute transverse disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse contentis, progressive multifocal leukoencephalopathy, sub acute prisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar content palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, cardiac arrhythmias and congestive heart failure, reactive gliosis, cardiac arrhythmias and congestive heart failure, reactive gliosis, cardiac arrhythmias and other neuromuscular blocking drugs. The reversal of curare and other neuromuscular blocking drugs. The correspical disorder is a selarue, preferably one associated with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated with hypoxia, anoxia or ischaemia. The neurotoxic injury associated with hypoxia, anoxia or ischaemia, drownings, suffocation, perinatal asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine, acute pain, persistent pain, neuropathic pain, nociceptive pain. The

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peptide of is useful to alleviate pain in a mammal in pain or about to be subjected to a pain causing event, and to treat disorders associated with radical depolarisation of exclable membranes by activating a KATP channel, the disorders include cardiac; ocular and cerebral ischaemia and
cardiovascular disorder. A conotoxin
  disorder is inflammation or a
  88666666
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Sequence 26 AA;

Check: 5564 Type: P February 20, 2007 16:53 Length: 26 AAU06034

CIXSGDLCFX SDHIQCCNAK CAFVCL

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Cone snail O-superfamily conotoxin propeptide, Cr6.5,
SEQUENCE 1.0
AAU06035 standard; peptide; 31 AA.
               24-OCT-2001 (first entry)
                            snail;
         AAU06035;
         CCCCCCCCCCCCCCX8X8444X844X11X444X84X8X8X8X8X8X8X4X8X
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demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; congestive heart failure; cancer; immunosuppression; epilepsy; asthma; O-superfamily conotoxin; sodium channel; ischaemia; stroke; pain

Conus circumcisus

WO200149312-A2.

12-JUL-2001

28-DEC-2000; 2000WO-US035431

2000US-0214263P. 2000US-0219440P. 2000US-0243412P. 99US-0173754P 30-DEC-1999; 26-JUN-2000; 20-JUL-2000;

27-OCT-2000;

(UTAH) UNIV UTAH RES FOUND. (COGN-) COGNETIX INC.

Watkins M, Hillyard DR, Mcintosh JM; Cartier GE, Jones RM; WPI; 2001-418352/44. BW, Layer RT, Olivera

N-PSDB; AAS11005.

O-superfamily polypeptides useful for treating voltage gated ion nnel disorders, including demyelinating diseases i.e. multiple sclerosis, channel

Claim 15; Page 89; 277pp; English.

dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuromuscular blocking drugs. The neurological disorder is a seizure, preferably one associated with epilepsy. The neurological disorder is a neurotoxic injury associated The sequence is a cone snail O-superfamily conotoxin propeptide. The peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse myelitis, progressive multifocal leukoencephalopathy, sub acute sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin postsoning, Huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive

with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine, acute pain, persistent pain, neuropathic pain, modiceptive pain. The disorder is inflammation or a cardiovascular disorder. A conotoxin peptide of is useful to alleviate pain in a mammal in pain or about to be subjected to a pain causing event, and to treat disorders associated with radical depolarisation of excitable membranes by activating a KATP channel, the disorders include cardiac, ocular and cerebral ischaemia and

Sequence 31 AA; 88888888888888

Check: 6287 Type: P AAU06035 Length: 31 February 20, 2007 16:53

NRLSWCIPSG DLCFPSDHIQ CCSAKCAFVC

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           AAU06043 standard; peptide; 31
!! AA SEQUENCE 1.0
                                          AAU06043;
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(first entry) 24-OCT-2001

Cone snail O-superfamily conotoxin propeptide, Cr6.6B.

Cone snail; O-superfamily conotoxin; sodium channel; demyelinating disease; multiple sclerosis; Huntingdon's disease; neuropathy; carpal tunnel syndrome; cardiovascular disorder; cordible congestive heart failure; cancer; immunosuppression; epilepsy; asthma; ischaemia; stroke; pain.

Conus circumcisus.

WO200149312-A2

12-JUL-2001.

28-DEC-2000; 2000WO-US035431

99US-0173754P. 30-DEC-1999; 26-JUN-2000;

2000US-0219440P 2000US-0243412P 27-OCT-2000; 20-JUL-2000;

(UTAH) UNIV UTAH RES FOUND

Watkins M, Hillyard DR, Mcintosh JM; Cartier GE, COGNETIX INC Jones RM; ₩, (COGN-) Olivera

Layer RT,

WPI; 2001-418352/44. N-PSDB; AAS11009

New O-superfamily polypeptides useful for treating voltage gated ion channel disorders, including demyelinating diseases i.e. multiple channel di sclerosis.

Claim 15; Page 90; 277pp; English.

peptides are useful for regulating the flow of sodium through sodium channels in an individual and the treatment or prevention of disorders associated with voltage gated ion channel disorders, including demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis, disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse sclerosing panecephalomyelitis, adrenoleukodystrophy, sub acute sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy. Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin postsoning, Huntington's, compression, entrapment neuropathies i.e. ulnar nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e. cardiac arrhythmias and congestive heart failure, reactive gliosis, sequence is a cone snail O-superfamily conotoxin propeptide. The

polypeptide.

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dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and reversal of curare and other neuromuscular blocking drugs. The neurological disorder is a seizure, preferably one associated with epilepsy. The neurological disorder is a neurotoxic injury associated with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal asphyxia or hypoglycaemic events. The disorder is pain, ie. migraine, acute pain, persistent pain, neuropathic pain, nociceptive pain. The disorder is inflammation or a cardiovascular disorder. A conotoxin peptide of is useful to alleviate pain in a mammal in pain or about to be subjected to a pain causing event, and to treat disorders associated with radical depolarisation of excitable membranes by activating a KATP channel, the disorders include cardiac, ocular and cerebral ischaemia and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present invention relates to an analgesic composition comprising HWAP—I polypeptide of the Chinese bird spider, Selenocosmia huwena. The composition is useful for reducing perceived pain in a subject. It is particularly useful for the treatment of subjects with joint pain, tooth pain, headaches, chest pain, neurogenic pain, myofascial pain syndrome, chronic idiopathic pain syndrome, gynaecologic pain syndrome, recurrent abdominal pain in children, and pain in cancer patients. The composition has long term analgesic effects in a subject without causing any toxic side effects. The present sequence represents S. huwena HWAP-I
    hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Analgesic composition; HWAP-I; Chinese bird spider; reducing pain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Reducing perceived pain in subject such as joint pain, headache, pain, gynecological pain, involves administering purified HWAP-I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      joint pain; tooth pain; headache; chest pain; neurogenic pain; myofascial pain syndrome; chronic idiopathic pain syndrome; gynaecologic pain syndrome; recurrent abdominal pain; cancer.
                                                                                                                                                                                                                                                                                                                                                                                                   Type: P Check: 5538
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/note= "Encoded by AGTAAA"
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                                                                                                                                                                                                                                                                                                                                                                                                                                               NRLSRCIPSG DLCFPSDHIQ CCNAKCAFAC L
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADC21243 standard; peptide; 33 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 4; Page 2; 10pp; English.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (SONG/) SONG-PING L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2001-657443/68
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                                                                                                                                                                                                                                                                                                                                                              Sequence 31 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polypeptide
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADC21243;
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856666666666666666888
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of 30 -50 residues (I). (I) have neuroprotective, antinicammentary, ophthalmological antidote, antibacterial, anticonvulsant, muscular, cardiant, antidatetic, antiaddictive, cardiarshythmic, cardiant, antidatetic, antiaddictive, immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant, antiasthmatic, vasotropic, analgesic antimigraine, antirheumatic, antiasthmatic, dermaclogical, tranquilliser and neuroleptic activities.

(I) can be used as an H-ATPase stimulator, potassium agonist and curare antagonist. (I) are useful in the treatment of multiple sclerosis, acute anticonstitue and constantic antistical leukoencephalomyelitis, optic neuromyelitis, progressive multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse myelitis, subacute sclerosing panencephalomyelitis, metachromic couldnum toxin poisoning, Huntington's chorea, compression and entrapment neuropathies, cardiovascular disease, reactive gliosis, hyperalycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, disorders resulting from the defects of neurotransmitter release and reversal of the actions curare and other neuromuscular blocking drugs. (I) can also be used to treat disorders associated with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis.
                                                                                                                                                                                                                                                                                                                                       Conotoxin, Conus, I-conotoxin, I-superfamily conotoxin, venom, antidote, cone snail; marine gastropod; neuroprotective; antiinflammatory; ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic; cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic; antiaddictive; cytostatic; cardiant; immunosuppressive; nootropic; antiaddictive; cathingraine; relaxant; antirheumatic; antiathmitic; dermatcological; transquilliser; neurological; neurological; cathingraine; neurologici; antiathritic; potassium agonist; curare antagonist.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           present invention describes substantially pure I-conotoxin peptides
                                                                            February 20, 2007 16:53 Type: P Check: 2431
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                                                                                                                                                                                                                                                                                                     Conus virgo I-superfamily conotoxin type II peptide SEQ:465.
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                                                                                                                    ACKGVFDACT PGKNECCPNR VCSDKHKWCK WKI
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                                                                                                                                                           SEQUENCE 1.0
ABB88893 standard; peptide; 30 AA.
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Shen GS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; 2000US-0243410P.; 2000US-0246581P.; 2000US-0247714P.; 2001US-0264256P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29-JUN-2001; 2001WO-US020796.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (UTAH ) UNIV UTAH RES FOUND.
                                                                                                                                                                                                                                                                 22-MAY-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Shetty R,
Jones RM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (COGN-) COGNETIX INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2002-171634/22.
                                                                              Length: 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200202590-A2.
                                        Sequence 33 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27-OCT-2000;
08-NOV-2000;
14-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30-JUN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conus virgo.
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Watkins M,
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                                                                              ADC21243
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excitable membranes, and disorders associated

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with voltage gated ion channels, pain and a neuromuscular disorder. (I) are also useful for screening compounds that mimic the activity of an I-conotoxin. They are also useful for the treatment of autoimmune diseases, rheumatoid arthritis, systemic lupus erryhrematosus, Alzheimer's, anxiety and schizophrenia. ABL88662 to ABL88778 and ABB88946 to ABB88934 represent sequences used in the exemplification of the present invention
  depolarisation of
                                                                                                                                                                                                                 Sequence 30 AA;
radical
88888888888888
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February 20, 2007 16:53 Type: P Check: 4784 ABB88893 Length: 30

SFQCCHGICC FRRCSNSCRF CLHETSPCRR

!!AA_SEQUENCE 1.0 ID ABB88886 standard; peptide; 31 AA.

ABB8886;

22-MAY-2002 (first entry)

Conus emaciatus I-superfamily conotoxin type. II peptide SEQ:458.

Conotoxin, Conus, I-conotoxin; I-superfamily conotoxin, venom, antidote, cone snail; marine gastropod; neuroprotective, antinflammatory; ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic, cardiovascular; antiarrhythmic, cardiant; immunosuppressive, nootropic, antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic, antigatic; antimigraine; relaxant; antirheumatic; antiarthritic; dermatcological; tranquilliser; neuroleptic; H-ATPase stimulator; potassium agonist; curare antagonist.

Conus emaciatus.

#0200202590-A2.

10-JAN-2002.

29-JUN-2001; 2001WO-US020796.

30-JUN-2000; 2000US-0304166P. 27-OCT-2000; 2000US-0243410P. 08-NOV-2000; 2000US-0246581P. 14-NOV-2000; 2000US-0247714P.

2001US-0264256P 29-JAN-2001;

(UTAH) UNIV UTAH RES FOUND. COGNETIX INC (COGN-)

Mcintosh JM, Jiminez EC, Shen GS; Shetty R, Jones RM, Walker CS, Watkins M,

BW.

Olivera

WPI; 2002-171634/22.

Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis.

Example 3; Page 83; 260pp; English.

of 30 -50 residues (1). (1) have neuroprotective, antinflammatory, ophthalmological, antidote, antibacterial, anticonvulsant, muscular, ophthalmological, antidote, antibacterial, anticonvulsant, muscular, aradioacscular, antiatrhythmic, cardiant, antidiabetic, antiaddictive, immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant, antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic, antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic, antiasthmic, dermatological, tranquilliser and neuroleptic activities antagonist. (1) can be used as an H-ATPase stimulator, potassium agonist and curare antagonist. (1) are useful in the treatment of multiple sclerosis, acute multifocal leukoencephalopathy, adenoleukodystrophy, acute transverse myelitis, subacute sclerosing panencephalomyelitis, metachromic leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury, present invention describes substantially pure I-conotoxin peptides

botulinum toxin poisoning, Huntington's chorea, compression and entrapment neuropathies, cardiovascular disease, reactive gliosis, phyperglyracemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, disorders resulting from the defects of neurotransmitter release and reversal of the actions curare and other neuromuscular blocking drugs. (I) can also be used to treat disorders associated with radical depolarisation of excitable membranes, and disorders associated with voltage gated ion channels, pain and a neuromuscular disorder. (I) are also useful for screening compounds that mimic the activity of an I-conotoxin. They are also useful for the treatment of autoimmune diseases, rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's anxiety and schizophrenia. Abbu88662 to Abbu88654 to Abbu88934 represent sequences used in the exemplification of the present invention 8888888888888888888888888888888888

Sequence 31 AA;

Type: P Check: 7477 February 20, 2007 16:53 Length: 31 ABB8886

CRREGSSCRR SYQCCRKSCC IGECEFPCRW V

!!AA_SEQUENCE 1.0 ID ABB88902 standard; peptide; 30 AA.

ABB88902;

(first entry) 22-MAY-2002 Conus figulinus I-superfamily conotoxin type II peptide SEQ:474.

cone snail; marine gastropod; neuroprotective; antinflammatory; ophthalmological; antibacterial; anticonvulsant; muscular; antidabetic; cardiovascular; antidarrhythmic; cardiant; immunosuppressive; noctropic; antiaddictive; cytostatic; cardiant; immunosuppressive; noctropic; antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic; antiadgraine; relaxant; antirheumatic; antiarthritic; dermatological; tranquilliser; neuroleptic; H-ATPase stimulator; potassium agonist; curare antagonist. Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;

WO200202590-A2.

Conus figulinus.

10-JAN-2002

29-JUN-2001; 2001WO-US020796.

30-JUN-2000; 2000US-0304166P. 27-OCT-2000; 2000US-0243410P. 08-NOV-2000; 2000US-024681P. 14-NOV-2000; 2000US-0247144P. 29-JAN-2001; 2001US-0264256P.

UNIV UTAH RES FOUND. COGNETIX INC. (UTAH) UNIV (COGN-) COGNE

BW. Olivera Mcintosh JM, Jiminez EC, Shen GS; Shetty R, Jones RM, Walker CS, Watkins M,

WPI; 2002-171634/22.

Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis.

Example 3; Page 83; 260pp; English.

The present invention describes substantially pure I-conotoxin peptides of 30 - 50 residues (I). (I) have neuroprotective, antiinflammatory, ophthalmological, antidote, antibacterial, anticonvulsant, muscular, cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive, immunosuppressive, cytostatic, nototropic, cerboroprotective, relaxant, antiasthmatic, vasocropic, analgesic, antimigraine, antirhemmatic, antiarthritic, dermatological, tranquilliser and neuroleptic activities.

antagonist. (I) are used as an H-ATPase stimulator, potassium agonist and curare antagonist. (I) are useful in the treatment of multiple sclerosis, acute disseminated encephalomyclitis, optic neuromyclitis, progressive multifocal leukoencephalomyclitis adrenoleukodystrophy, acute transverse myelitis, subacute sclerosing panencephalomyclitis, metachromic leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury, leukodystrophy, poisoning, Huntington's chorea, compression and entrapment neuropathies, cardiovascular disease, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, disorders resulting from the defects of neurotransmitter release and reversal of the actions curare and other neuromuscular blocking drugs. (I) can also be used to treat disorders associated with voltage gated ion channels, pain and a neuromuscular disorder. (I) are also useful for the treatment of autoimmune diseases, rend activity of an I-conotoxin. They are also useful for the treatment of autoimune diseases, rehumatoid arthritis, systemic lupus eryhrematosuc, Alzheimer's, anxiety and schizophrenia. ABLS8656 to ABBS8778 and ABBS8546 to ABBS8934 invention Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis. Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote; cone snail; marine gastropod; neuroprotective; antiinflammatory; ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic; antiaddictive; antiarhythmic; cardiant; immunosuppressive; nootropic; antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic; analgesic; antimigraine; relaxant; antirheumatic; antiarthritic; dermatological; tranquilliser; neuroleptic; H-ATPase stimulator; Type: P Check: 4050 Conus lynceus I-superfamily conotoxin type I peptide SEQ:405. Olivera BM; Mcintosh JM, February 20, 2007 16:53 CHHEGLPCTS GDGCCGMECC GGVCSSHCGN potassium agonist; curare antagonist Jiminez EC, Example 3; Page 82; 260pp; English. Shen GS; 30-JUN-2000; 2000US-0304166P. 27-OCT-2000; 2000US-0243410P. 08-NOV-2000; 2000US-0246581P. 2001US-0264256P 29-JUN-2001; 2001WO-US020796 2000US-0247714P (UTAH) UNIV UTAH RES FOUND. (revised)
(first entry) Shetty R, Jones RM, COGNETIX INC WPI; 2002-171634/22. ABB88902 Length: 30 Sequence 30 AA; WO200202590-A2. 08-NOV-2000; 14-NOV-2000; 29-JAN-2001; 07-AUG-2003 22-MAY-2002 10-JAN-2002 Walker CS, Watkins M, ABB88833; Conus sp. (COGN-)

the present invention describes bussequitary, pure 1-conocolar preprints and conditions are conditions and conditions and conditions and conditions and conditions are conditions and conditions and conditions and conditions and conditions are conditions and conditions and conditions are conditions and conditions and conditions and conditions are also useful for the treatment of autoimmune disorder. The match conditions and cone snail; marine gastropod; neuroprotective; antiinflammatory; ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic; cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic; antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic; analgesic; antimigraine; relaxant; antirheumatic; antiarthritic; dermatological; tranquilliser; neuroleptic; H-ATPase stimulator; Conotoxin, Conus, 1-conotoxin, 1-superfamily conotoxin; venom; antidote; present invention describes substantially pure I-conotoxin peptides Conus striolatus I-superfamily conotoxin type II peptide SEQ:481 ABB88833 Length: 38 February 20, 2007 16:53 Type: P Check: 4508 Olivera BM; Mcintosh JM, NWSWCSGSGE GCDYHSECCG ERCCIESMCI GDGVACWP (Updated on 07-AUG-2003 to correct OS field.) potassium agonist; curare antagonist Jiminez EC, Ä Shen GS; ABB88909 standard; peptide; 30 30-JUN-2000; 2000US-0304166P. 27-OCT-2000; 2000US-0243410P. 08-NOV-2000; 2000US-02455BIP. 14-NOV-2000; 2000US-0247714P. 29-JUN-2001; 2001WO-US020796. 29-JAN-2001; 2001US-0264256P (UTAH) UNIV UTAH RES FOUND 22-MAY-2002 (first entry) Shetty R, Jones RM, (COGN-) COGNETIX INC Conus striolatus. Sequence 38 AA; WO200202590-A2. !! AA_SEQUENCE 1.0 10-JAN-2002. Walker CS, Watkins M, ABB88909;

WPI; 2002-171634/22

Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis.

Example 3; Page 83; 260pp; English.

The present invention describes substantially pure I-conotoxin peptides of 30 -50 residues (I). (I) have neuroprotective, antinflammatory, ophthalmological, antidoce, antibacterial, antidoculant, muscular, cardiant, antidoculant, antidoculant, antidoculant, antidoculant, cardiant, antidoculant, antidoculant, cardiant, antidoculant, cardiant, antidoculant, cardiant, antidoculant, cardiant, cardiant, antidoculant, relaxant, antidathmatic, vasotropic, analgesic, antimigraine, antirheumatic, antidathmatic, dermatological, tranquilliser and neuroleptic activities.

(I) can be used as an H-ATPase stimulator, potassium agonist and curare antagonist. (I) are useful in the treatment of multiple sclerosis, acute disseminated encephalomyelitis, optic neurowightis, progressive antidical autoconcephalopathy, acrenleukodystrophy, acute transverse multifocal leukoancephalopathy, acrenleukodystrophy, acute transverse multifocal leukoancephalopathy, dencephalopathy, acrenleukodystrophy, polizacus-warzbacher disease, spinal cord injury, botulinum toxin poisoning, Huntington's chorea, compression and entrapment neuropathies, cardiovascular disease, reactive gliosis, hyperstylycaemia, immunosuppression, cocaine addiction, cancer, cognitive chypsiunction, disorders resulting from the defects of neurotransmitter release and reversal of the actions curare and other neuromuscular blocking drugs. (I) can also be used to treat disorders associated with voltage gated ion channels, pain and a neuromuscular disorder. (I) are also useful for the treatment of autoimmune diseases, rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety and schizophrenia. ABLS8652 to ABBS8934 and ABBS8934 condication of expresent invention ceremple in the exemplification of the present invention

Sequence 30 AA;

ABB88909 Length: 30 February 20, 2007 16:53 Type: P Check: 4452

CHHEGLPCSS DDGCCGMECC NGVCSSSCGN

!!AA_SEQUENCE 1.0 ID ABB8884 standard; peptide; 30 AA.

ABB8884;

22-MAY-2002 (first entry)

Conus emaciatus I-superfamily conotoxin type II peptide SEQ:456.

Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote; cone snail; marrine gastropod; neuroprotective; antiinflammatory; ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic; cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic; antiaditive; cytostactic; cardiant; immunosuppressive; nootropic; antiaditive; cytostactic; cardiant; antiasthmatic; vasotropic; analgasic; antimigraine; relaxant; antirheumatic; vasotropic; dermatological; tranqulliser; neuroleptic; H-Arpase stimulator; potassium agonist; curare antagonist

Conus emaciatus

WO200202590-A2.

10-JAN-2002.

29-JUN-2001; 2001WO-US020796 30-JUN-2000; 27-OCT-2000;

2000US-0304166P. 2000US-0243410P. 2000US-0246581P. 2000US-0247714P. 2001US-0264256P. 29-JAN-2001; 08-NOV-2000;

(UTAH) UNIV UTAH RES FOUND

(COGN-) COGNETIX INC.

Olivera BM; Mcintosh JM, EC, Jiminez E Shen GS; Shetty R, Jones RM, Walker CS, Watkins M,

WPI; 2002-171634/22.

Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis.

Example 3; Page 83; 260pp; English.

The present invention describes substantially pure 1-conotoxin peptides of 30 -50 residues (1). (1) have neuroprotective, antinflammatory, ophthalmological, antidoce, antidocerial, anticonvulsant, muscular, cardiovascular, antidocerial, anticonvulsant, muscular, cardiovascular, antidoceria, antidoceria, antidoceria, antidoceria, cardioceria, cardiovascular, cardiovascular, antidoceria, antidoceria, antidoceria, cardioceria, cardioceria, cardioceria, rasolateria, cardiovascular, antidoceria, antidoceria, rasolateria, cardiovascular, antidoceria, antidoceria, rasolateria, cardiovascular, antidoceria, antidoceria, cardiovascular, cardiovascular, progressive antigonist. (1) are useful in the treatment of multiple sclerosis, acute disseminated encephalomyelitis, optic neuromyelitis, progressive multifocal leukoencephalomyelitis, optic neuromyelitis, progressive multifocal leukoencephalomyelitis, optic neuromyelitis, metachromic multifocal leukoencephalopathy, actenocerial cardiovascular disease, spinal cord injury, betulinum toxin poisoning, Huntington's chorea, compression and entrapment neuropathies, cardiovascular disease, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, disorders resulting from the defects of neurotransmitter release and reversal of the actions curare and other neuromuscular blocking drugs. (1) can also be used to treat disorders associated with voltage gated ion channels, pain and a neuromuscular disorder. Controcaine also useful for screening compounds that mimic the activity of an I-controcaine also useful for the treatment of autoimmune diseases, rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's anxiety and schizophrenia. Abila8878 and Abibs88934 condisorders invention

Sequence 30 AA;

1 CLHETSPCRR SFQCCHGICC FRRCSNSCRF

ABB88884 Length: 30 February 20, 2007 16:53 Type: P Check: 4784

ABB88900 standard; peptide; 31 AA IAA_SEQUENCE 1.0

ABB88900;

22-MAY-2002 (first entry)

Conus figulinus I-superfamily conotoxin type II peptide SEQ:472.

Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote; cone snail; marine gastropod; neuroprotective; antiinflammatory; ophthalmological; antiabacterial; anticonvulsant; muscular; antidiabetic; cardiaut; antiavrythmic; cardiaut; immunosuppressive; notropic; antiaddictive; cytostatic; cardiaut; immunosuppressive; notropic; antiaddictive; cytostatic; acrebroprotective; antiasthmatic; vasotropic; analgesic; antimigraine; relaxant; ancirheumatic; antiarthritic; dermatological; tranquilliser; neuroleptic; H-ATPase stimulator; potassium agonist; curare antagonist.

Conus figulinus

WO200202590-A2.

10-JAN-2002.

29-JUN-2001; 2001WO-US020796

30-JUN-2000; 2000US-0304166P

10-JAN-2002

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The present invention describes substantially pure I-conotoxin peptides of 30 -50 residues (I). (I) have neuroprotective, antinflammatory, copthalmological, antidoc, antibacterial, anticonvulsant, muscular, cardious, antionivalsant, antidactive, inmunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant, antistrhmitic, dermatological, tranquilliser and neuroleptic activities. (I) can be used as an H-ATPase simulator, potassium agonist and curare antagonist. (I) are useful in the treatment of multiple solerosis, acute disseminated encephalopathy, apricone controlic, metachromic multifocal leukoencephalopathy, apricone compressive multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse myelitis, subacute sclerosing panencephalomyelitis, metachromic leukodystrophy, Pelizaeus-Warzbacher disease, spinal cord injury, betulinum toxin poisoning, Huntington's chorea, compression and entrapment neuropathies, cardiovascular disease, reactive gliosis, hyperdyscamia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, disorders resulting from the defects of neurotransmitter release and reversal of the actions curare and other neuromuscular blocking drugs. (I) can also be used to treat disorders associated with voltage gated ion channels, pain and a neuromuscular disorder. Conotoxin. They are also useful for the treament of autoimmune diseases, theumatoid arthritis, systemic lupus erythermatosus, Alzheimer's, anxiety and schizophrenia. Abla8662 to Abla8778 and Abbs88546 to Abbs88934 crepresent sequences used in the exemplification of the present invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pure I-conotoxin peptides isolated from venom of cone snails, useful for
the regulation of the flow of potassium through potassium channels in the
treatment of e.g. multiple sclerosis.
                                                                                                                                                                                                                                                                                                                Olivera BM;
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                                                                                                                                                                                                                                                                                                                Jiminez B
Shen GS;
08-NOV-2000; 2000US-0246581P.
14-NOV-2000; 2000US-0247714P.
29-JAN-2001; 2001US-0264256P.
                                                                                                                                                                                 UTAH ) UNIV UTAH RES
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Jones RM,
                                                                                                                                                                                                                          COGNETIX INC
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Watkins M,
                                                                                                                                                                                                                          COGN-)
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Conotoxin; Conue; I-conotoxin; I-superfamily conotoxin; venom; antidote; cone snail; marrine gastropod; neuroprotective; antiinflammatoxy; ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic; cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic; antiadioticive; cytostatic; cerebroprotective; antiasthmatic; vasotropic; analgesic; antimigraine; relaxant; antirheumatic; vasotropic; dermarcological; trangulaliser; neuroleptic; H-ATPase stimulator;
Type: P Check: 6547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conus virgo I-superfamily conotoxin type II peptide SEQ:467.
ABB88900 Length: 31 February 20, 2007 16:53
                                                                                          CRAEGVRCEF DSQCCESECC MGSCANPCRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        potassium agonist; curare antagonist.
                                                                                                                                                                                                                               ABB88895 standard; peptide; 30 AA.
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                                                                                                                                                                                    !!AA SEQUENCE 1.0
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WO200202590-A2

Conus virgo.

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the present invention describes subscentiating pure inconvolusing present invention describes subscential, antidated antidabetic antidated antidabetic, antidated antidabetic, antidated and antidated antidated antidated and antidated antidated antidated and antidated antidated and antidated antidated and antidated and antidated antidated and antidated antidated antidated and antidated antidated and antidated antidated antidated and antidated antidated and antidated antidated antidated antidated antidated antidated antidated and antidated antidated and antidated antidated and a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   present invention describes substantially pure I-conotoxin peptides
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                                                                                                                                                                                                                                                                                                                                                     Olivera BM;
                                                                                                                                                                                                                                                                                                                                                Jiminez EC, Mcintosh JM,
Shen GS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLHETPPCRR SFQCCHGNCC FRRCSNSCRF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example 3; Page 83; 260pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      !!AA SEQUENCE 1.0
ID ABB89903 standard; peptide; 30 AA.
                                                                                                                                                 2000US-0243410P.
2000US-0246581P.
                                                                       29-JUN-2001; 2001WO-US020796
                                                                                                                                                                                            14-NOV-2000; 2000US-0247714P
29-JAN-2001; 2001US-0264256P
                                                                                                                         2000US-0304166P
                                                                                                                                                                                                                                                                           (UTAH ) UNIV UTAH RES FOUND.
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                                                                                                                                                                                                                                                                                                                                                     Shetty R,
Jones RM,
                                                                                                                                                                                                                                                                                                   COGNETIX INC
                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2002-171634/22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 30 AA;
                                                                                                                                                                         08-NOV-2000;
14-NOV-2000;
                                                                                                                         30-JUN-2000;
                                                                                                                                                    2000;
                                                                                                                                                                                                                                                                                                                                                     Walker CS,
Watkins M,
                                                                                                                                                                                                                                                                                                        (COGN-)
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dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;

potassium agonist; curare antagonist

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Conus virgo I-superfamily conotoxin type II peptide SEQ:468.
                                                                                                                                                                                                                                                                !!AA_SEQUENCE 1.0
ID ABB88896 standard; peptide; 30 AA.
                                                                                                                                                                                                                                                                                     22-MAY-2002 (first entry)
                                                                               Shetty R,
Jones RM,
                                                                       COGNETIX INC
                                                                                           WPI; 2002-171634/22.
                                                                                                                                                                                                                                                 Length: 30
                   WO200202590-A2.
                                                                                                                                                                                                                                        Sequence 30 AA;
                                           30-JUN-2000;
                                               27-OCT-2000;
08-NOV-2000;
                           10-JAN-2002
                                                                               Walker CS,
Watkins M,
                                                                                                                                                                                                                                                                             ABB8896;
                                                                       (COGN-)
            Conus
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Type: P Check: 3846 February 20, 2007 16:53

CHHEGLPCAS DDGCCGMECC GGVCSSHCGN

The present invention describes substantially pure I-conotoxin peptides of 30 -50 residues (I). (I) have neuroprotective, antinflammatory, ophthalmological, antidote, antibacterial, anticonvulsant, muscular, cardiovascular, antidote, antibacterial, antidotein, muscular, immunosuppressive, cytostatic, noctropic, cerebroprotective, relaxant, antiathritic, dermatological, tranquilliser and neuroleptic activities. (I) can be used as an H-ATPase stimulator, potassium agonist and curare antagonist. (I) are useful in the treatment of multiple sclerosis, acute disseminated encephalomyelitis, optic neuromyelitis, progressive multifocal leukoencephalopathy, acrenoleukodystrophy, acute transverse multifocal leukoencephalopathy, acrenoleukodystrophy, acute transverse myelitis, subacute sclerosing panencephalomyelitis, metachromic leukodystrophy, pelizacus-Merzbacher disease, spinal cord injury, botulinum toxin poisoning, Huntington's chorea, compression and entrapment neuropathies, cardiovascular disease, reactive gliosis, hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, disorders resulting from the defects of neurotransmitter release and reversal of the actions curare and other neuromuscular blocking drugs. (I) can also be used to treat disorders associated with voltage gated ion channels, pain and a neuromuscular disorder. Contoxin. They are also useful for the treatment of autoimune diseases, rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's anxiety and schizophrenia. ABL88652 to ABL88778 and ABB888546 to ABB88934 creation Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis. Jiminez EC, Mcintosh JM, Shen GS; Example 3; Page 83; 260pp; English. 14-NOV-2000; 2000US-0247714P. 29-JAN-2001; 2001US-0264256P. 2000US-0243410P. 2000US-0246581P. 29-JUN-2001; 2001WO-US020796 (UTAH) UNIV UTAH RES FOUND.

Olivera BM;

ABB88896 Length: 30 February 20, 2007 16:53 Type: P Check: 4685 CLHETSPCGR SPQCCHGICC FRRCSNSCRF 1!AA SEQUENCE 1.0 ID ABB88901 standard; peptide; 31 AA. AX

The present invention describes substantially pure I-conoctoxin peptides of 30 -50 residues (I). (I) have neuroprotective, antinflammatory, capthalmological, antidoce, antibacterial, anticonvulsant, muscular, cardiant, antidiabelic, antidocity, antidocity, antidocity, antidocity, antidocity, antidocity, antidocity, antidocity, antidocity, relaxant, antidiathmic, vasotropic, analgesic, antidigraine, antirhommatic, antidocity, dermatological, tranquilliser and neuroleptic activities. (I) can be used as an H-APPase stimulator, potassium agonist and curare antagonist. (I) are useful in the treatment of multiple sclerosis, acute disseminated encephalomyelitis, optic neuropylelitis, progressive multifocal leukoencephalomyelitis, optic neuropylelitis, progressive multifocal leukoencephalopathy, actenoleukodystrophy, acute transverse myelitis, subacute sclerosing panencephalomyelitis, metachromic leukodystrophy, pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin poisoning, Huntington's chorea, compression and entrapment neuropathies, cardiovascular disease, reactive gliosis, hyperacylycaemia, immunosuppression, cocaine addiction, cancer, cognitive cysfunction, disorders resulting from the defects of neurotransmitter release and reversal of the actions curare and other neuromuscular blocking drugs. (I) can also be used to treat disorders associated with voltage gated ion channels, pain and a neuromuscular disorder. (I) are also useful for the treatment of autoimmune diseases, renumentoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety and schizophrenia. ABLB8662 to ABLB8778 and ABBB88934 to ABBB89934 crepterent invention Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis. Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote; cone snail; marine gastropod; neuroprotective; antinfilammatory; ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic; cardiaut; immunosuppressive; notropic; antiaddictive; cytostatic; cardiaut; immunosuppressive; nootropic; antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic; analgesic; antimigraine; relaxant; antirheumatic; antiarthritic; dermatological; tranquilliser; neuroleptic; H-ATPase stimulator; potassium agonist; curare antagonist. useful Olivera BM; Mcintosh JM, Jiminez EC, Shen GS; Example 3; Page 83; 260pp; English. 27-0CT-2000; 2000US-0243410P. 08-NOV-2000; 2000US-0246581P. 14-NOV-2000; 2000US-024714P. 29-JAN-2001; 2001US-0264256P. 29-JUN-2001; 2001WO-US020796 2000US-0304166P (UTAH) UNIV UTAH RES FOUND. Shetty R, Jones RM, COGNETIX INC WPI; 2002-171634/22 Sequence 30 AA; WO200202590-A2. 30-JUN-2000; Conus virgo. 10-JAN-2002 Walker CS, Watkins M, (COGN-)

ABB88901;

22-MAY-2002 (first entry)

Conus figulinus I-superfamily conotoxin type II peptide SEQ:473.

cone snail; marine gastropod; neuroprotective; antilnflammatory; ophthalmological; antibacterial; anticonvulsant; muscular; antidabetic; cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic; antiaddictive; cytostatic; erebroprotective; antiasthmatic; vasotropic; analgesic; antimigraine; relaxant; antirheumatic; antiarthritic; dermatological; tranquilliser; neuroleptic; H-ATPase stimulator; Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote; potassium agonist; curare antagonist

Conus figulinus.

WO200202590-A2

10-JAN-2002

29-JUN-2001; 2001WO-US020796

2000US-0304166P 30-JUN-2000;

2000US-0243410P. 2000US-0246581P. 2000US-024714P. 27-OCT-2000; 08-NOV-2000; 14-NOV-2000;

2001US-0264256P. 29-JAN-2001;

(UTAH)

UNIV UTAH RES FOUND. (COGN-)

Olivera BM; Mcintosh JM, Jiminez EC, Shen GS; Shetty R, Jones RM, Walker CS, Watkins M,

WPI; 2002-171634/22.

Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis.

Example 3; Page 83; 260pp; English.

commination antiforce, autopacterial, antidabetic, antidaddictive, commination autopact, antidarchythmic, cardiant, antidabetic, antidaddictive, immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant, antidatchmatic, antidatchmatic, antidatchmatic, antidatchmatic, antidatchmatic, dermatological, tranquiliser and neuroleptic activities.

(I) can be used as an H-ATPase stimulator, potassium agonist and curare antistructic dermatological, tranquiliser and neuroleptic activities.

(I) can be used as an H-ATPase stimulator, potassium agonist and curare antisfocal leukoencephalomyelitis, optic neuromyelitis, progressive multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse myelitis, subacute sclerosing panencephalomyelitis, metachromic leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin poisoning, Huntington's chorea, compression and entrapment neuropathies, cardiovascular disease, reactive gliosis, chyperalycaemia, immunosuppression, cocaine addiction, cancer, cognitive dysfunction, disorders resulting from the defects of neurormanhitter. blocking drugs. (I) can also be used to treat disorders associated with radical depolarisation of excitable membranes, and disorders associated with voltage gated ion channels, pain and a neuromuscular disorder. (I) are also useful for screening compounds that mimic the activity of an I-conotoxin. They are also useful for the treatment of autoimmune diseases, themacold arthritis, systemic lupus eryhrematosus, Altreimer's, anxiety and schizophrenia. Ablu88662 to Ablu88678 and Abb88934 to Abb88934 to Abb88934 to Abb88934 should be exemplification of the present invention The present invention describes substantially pure I-conotoxin peptides of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory, ophthalmological, antidote, antibacterial, anticonvulsant, muscular,

Sequence 31 AA;

CRAEGVYCEY GSQCCLSQCC MASCANPCRH

!IAA_SEQUENCE 1.0 ID ABB88899 standard; peptide; 30 AA

ABB8899;

22-MAY-2002 (first entry)

Conus figulinus I-superfamily conotoxin type II peptide SEQ:471,

cone snail; marine gastropod; neuroprotective; antiinflammatory; ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic; cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic; antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic; analgesic; antimigraine; relaxant; antirheumatic; antiarthritic; dermatological; tranquilliser; neuroleptic; H-ATPase stimulator; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote; potassium agonist; curare antagonist Conotoxin;

Conus figulinus.

WO200202590-A2

10-JAN-2002.

29-JUN-2001; 2001WO-US020796

2000US-0243410P. 2000US-0246581P. 2000US-024714P. 2000US-0304166P 10-JUN-2000; 08-NOV-2000; 27-OCT-2000;

14-NOV-2000;

29-JAN-2001; 2001US-0264256P

FOUND. (UTAH) UNIV UTAH RES (COGN-) COGNETIX INC. Olivera BM; Mcintosh JM, Jiminez EC, Shen GS; Shetty R, Jones RM, Walker CS, Watkins M,

WPI; 2002-171634/22.

Pure I-conotoxin peptides isolated from venom of cone snails, useful for the regulation of the flow of potassium through potassium channels in the treatment of e.g. multiple sclerosis.

Example 3; Page 83; 260pp; English.

The present invention describes substantially pure I-conotoxin peptides of 30 -50 residues (I). (I) have neuroprotective, antinflammatory, cof 30 -50 residues (I). (I) have neuroprotective, antinflammatory, cardianal matchannisant, muscular, cardianal antidonulsant, antidadictive, cardiavales antistendaric, antidactive, relaxant, antiatrhritic, dermatological, tranquilliser and neuroleptic activities antiatrhritic, dermatological, tranquilliser and neuroleptic activities.

(I) can be used as an H-ATPase stimulator, potassium agonist and curare antifocal leukoencephalomyelitis, optic neuromyelitis, progressive myelitis, subacute scleroshing panencephalomyelitis, metadromic collendaristophy, pelizaeus-Merzbacher disease, spinal cord injury, betulinum toxin poisoning, Huntington's chorea, compression and encopation in meunopathies, cardiovascular disease, reactive gliosis, controlement and compensation of exclination and chore neuromaniter collense and reversal of the actions curare and other neuromaniter collense and reversal of the actions curare and other neuromanite with voltage gated ion channels, pain and a neuromuscular (I) are also useful for the treatment of autoimmune diseases, reactive gliometry, and are also useful for the treatment of autoimmuned diseases, rehematoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety

February 20, 2007 16:53 Type: P Check: 6985 ABB88901 Length: 31

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The present invention describes substantially pure I-conotoxin peptides of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory, copid -50 residues (I). (I) have neuroprotective, antiinflammatory, cophthalmological, antidote, antidote, antidoteic, antiarhythmic, cardiant, antidiabetic, antiaddictive, immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant, antiathmatic, vasotropic, analgesic, antiadrame, antirheumatic, antiathritic, dermatological, tranquilliser and neuroleptic activities. (I) can be used as an H-ATPase stimulator, potassium agonist and curare antagonist. (I) are useful in the treament of multiple sclerosis, acute disseminated encephalomyelitis, optic neuromyelitis, progressive contections multifocal leukoencephalomyelitis, adrenoleukodystrophy, acute transverse multifocal subacute sclerosing panencephalomyelitis, metachromic leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury, betulinum toxin poisoning, Huntington's chorea, compression and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             venom of cone snails, useful for
through potassium channels in the
and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934 represent sequences used in the exemplification of the present invention
                                                                                                                                                                                                                                                                                                                                                                                 cone snail; marine gastropod; neuroprotective; antiinflammatory; ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic; cardiant; immunosuppressive; nootropic; antiaddictive; cytostatic; cerebroprotective; antiathmatic; vasotropic; analgesic; antimigraine; relaxant; antirheumatic; antiarthritic; dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
                                                                                                                                                                                                                                                                                                                                                                 Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
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                                                                                                 Type: P Check: 4017
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                                                                                                                                                                                                                                                                                                                       Conus virgo I-superfamily conotoxin type II peptide SEQ:469.
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                                                                                                   February 20, 2007 16:53
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the regulation of the flow of potassium
treatment of e.g. multiple sclerosis.
                                                                                                                                         CHHEGLPCTS DDGCCGMECC GGVCSSHCGN
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Shen GS;
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                                                                                                                                                                            !!AA_SEQUENCE 1.0
ID ABB88897 standard; peptide; 30 AA.
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2000US-0246581P.
2000US-0247714P.
2001US-0264256P.
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Jones RM,
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                                                                                                 ABB88899 Length: 30
                                                            Sequence 30 AA;
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08-NOV-2000;
14-NOV-2000;
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  and
  ខ្លួន្តប្រ
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radical depolarisation of excitable membranes, and disorders associated with voltage gated ion channels, pain and a neuromuscular disorder. (I) are also useful for screening compounds that mimic the activity of an I-conotoxin. They are also useful for the treatment of autoimmune diseases, rheumatoid arthritis, systemic lupus erryhrematosus, Alzheimer's, anxiety and schizophrenia. Abla88662 to ABL88778 and ABB88546 to ABB88934 represent sequences used in the exemplification of the present invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The invention comprises peptides having calcium channel blocking activities which are derived from the venomous saliva of assassin bugs. The calcium channel blocking peptides of the invention are useful for treating stenocardia, hypertension, myocarditis, arrhythmia and cerebral ischaemia. The present amino acid sequence represents an assassin bug calcium channel blocking peptide of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A new peptide derived from venomous saliva of assassin bug, has calcium channel blocking activity.
(I) can also be used to treat disorders associated with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Assassin bug; venomous saliva; calcium channel blocking activity; stenocardia; hypertension; myocarditis; arrhythmia; cerebral ischaemia.
                                                                                                                                                                                                                                                                                                                                                                                                                                          , venomous saliva, calcium channel blocking activity, hypertension; myocarditis; arrhythmia; cerebral ischaemia.
                                                                                                                                                                                                                                                                                                                                                                                                            Agriosphodrus dohrni (assassin bug) calcium channel blocking peptide.
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                                                                                                                                                                                                                                         CLYETSPCRR SFOCCHGICC FRRCSNSCRF
                                                                                                                                                                                                                                                                                                AAO15120 standard; peptide; 35 AA
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                                                                                                                                                                                                                                                                                                                                                                       (first entry)
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   blocking drugs.
                                                                                                                                                                    Sequence 30 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                            Assassin bug;
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88888888888
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                                                                                                                                                                            The invention comprises peptides having calcium channel blocking activities which are derived from the venomous saliva of assassin bugs. The calcium channel blocking peptides of the invention are useful for treating stenocardia, hypertension, myocardiis, arrhythmia and cerebral ischaemia. The present amino acid sequence represents an assassin bug calcium channel blocking peptide of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New cone snail conotoxin peptides, useful as a pain reliever for alleviating pain in an individual suffering from pain or who is about to be subjected to a pain-causing event, or for treating voltage-gated ion
                                                                                                                A new peptide derived from venomous saliva of assassin bug, has calcium channel blocking activity.
                                                                                                                                                                                                                                                                                                                                                                                                                  Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
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Jones RM, Schoenfeld
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                                                                                                                                                                                                                                                                                                                                                                                             sp conotoxin-associated peptide SEQ ID
                                                                                                                                                                                                                                                                                                GADEDCLPRG SKCLGENKQC CEKTTCMFYA NRCVGI
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                                                                                                                                                           Claim 9; Page 2; 26pp; Japanese.
                                                                                                                                                                                                                                                                                                                               ABG99363 standard, peptide, 36
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                                         01-SEP-2000; 2000JP-00266187
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                                                             01-SEP-2000; 2000JP-00266187
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(UTAH ) UNIV UTAH RES FOUND.
                                                                                                                                                                                                                                                                                                                                                                         17-JAN-2003 (first entry)
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                                                                                                       WPI; 2002-421068/45
                                                                                  (SUNR ) SUNTORY LTD
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                                                                                                                                                                                                                                                                           Length: 36
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                                                                                                                                                                                                                                                       Sequence 36 AA;
JP2002080499-A.
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                    19-MAR-2002
                                                                                                                                                                                                                                                                                                                     SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                               Conus
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This invention describes novel conotoxin peptides from the cone snail,

genus Conus which have analgesic activity and can act as a voltage-gated
ion channel modulator or a ligand-gated ion channel modulator. The
conotoxin peptide is useful as a pain-relieving agent for alleviating
conotoxin peptide is useful as a pain-relieving agent for alleviating
conotoxin peptide is useful eventing event. The conotoxin peptide is also useful
cubjected to a pain-causing event. The conotoxin peptide is also useful
cubjected to a pain-causing event. The conotoxin peptide is also useful
connel disorders, ligand-gated ion channel disorders or receptor
channel disorders, ilgand-gated ion channel disorders or receptor
characterising a new site on these receptors or channels, and for
screening and identifying novel small molecules that interact with the
accening and identifying novel small molecules that interact with the
ABG99360-ABG99853 represent the conotoxin protein and peptides described
in the disclosure of the invention
for treating or preventing disorders associated with voltage-gated ion channel disorders, ligand-gated ion channel disorders or receptor disorders. The radiolabeled conotoxin peptide is also useful for characterising a new site on these receptors or channels, and for screening and identifying novel small molecules that interact with the above-mentioned channels or receptors, which are monoamine transporters. ABG99360-ABG99853 represent the conotoxin protein and peptides described in the disclosure of the invention
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ligand-gated ion channel modulator; pain-relief.
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Jones RM, Schoenfeld
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ID _ABG99520 standard; peptide; 28
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(UTAH ) UNIV UTAH RES FOUND.
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Grilley M,
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WO200264740-A2.
         This invention describes novel conotoxin peptides from the cone snail, genus Conus which have analgesic activity and can act as a voltage-gated ion channel modulator or a ligand-gated ion channel modulator. The conotoxin peptide is useful as a pain-relieving agent for alleviating pain in an individual who is either exhibiting pain or is about to be subjected to a pain-causing event. The conotoxin peptide is also useful for treating or preventing disorders associated with voltage-gated ion channel disorders, ligand-gated ion channel disorders or receptor channels. The radiolabeled conotoxin peptide is also useful for characterising a new site on these receptors or channels, and for screening and identifying novel small molecules that interact with the
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ABG99360-ABG99853 represent the conotoxin protein and peptides described
in the disclosure of the invention
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Shetty R, Jones RM, Schoenfeld RM;
                                                                                                                                                        Conus sp conotoxin-associated protein SEQ ID 232.
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||AA_SEQUENCE 1.0
|ID ABG99519 standard; protein; 31 AA.
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ID ABG99674 standard; peptide; 36 AA.
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(UTAH ) UNIV UTAH RES FOUND.
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                                                                    ABG99519
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Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator; ligand-gated ion channel modulator; pain-relief.

Conus ammiralis.

Conus sp conotoxin-associated peptide SEQ ID 459.

17-JAN-2003 (first entry)

This invention describes novel conotoxin peptides from the cone snail, genus Conus which have analgesic activity and can act as a voltage-gated ion channel modulator or a ligand-gated ion channel modulator. The conotoxin peptide is useful as a pain-relieving agent for alleviating pain in an individual who is either exhibiting pain or is about to be subjected to a pain-causing event. The conotoxin peptide is also useful for channel disorders, ligand-gated ion channel disorders or receptor channel disorders, ligand-gated ion channel disorders or receptor characterising a new site on these receptors or channels, and for screening and identifying novel small molecules that interact with the aborders mentioned channels or receptors, which are monoamine transporters. New cone snail conotoxin peptides, useful as a pain reliever for alleviating pain in an individual suffering from pain or who is about to be subjected to a pain-causing event, or for treating voltage-gated ion Conotoxin, cone snail, analgesic, voltage-gated ion channel modulator; ligand-gated ion channel modulator; pain-relief. ABG99674 Length: 36 February 20, 2007 16:53 Type: P Check: 567 Watkins M, Garrett JE, Cruz LJ; letty R, Jones RM, Schoenfeld RM; ₹.; ₩.; Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Cruz Grilley M, Walker CS, Shetty R, Jones RM, Schoenfeld Conus sp conotoxin-associated peptide SEQ ID 466. WREGSCISWL ATCTQDQQCC TDVCYKRDYC ALWDDR Shetty R, Claim 1; Page 273; 305pp; English. !!AA_SEQUENCE 1.0 ID _ABG99681 standard; peptide; 32 AA. 11-FEB-2002; 2002WO-US003887. 09-FEB-2001; 2001US-0267408P 11-FEB-2002; 2002WO-US003887 09-FEB-2001; 2001US-0267408P. (COGN-) COGNETIX INC. (UTAH) UNIV UTAH RES FOUND. (COGN-) COGNETIX INC. (UTAH) UNIV UTAH RES FOUND. Olivera BM, Mcintosh JM, Grilley M, Walker CS, Sh 17-JAN-2003 (first entry) WPI; 2002-706921/76. WPI; 2002-706921/76 channel disorders. Conus gloriamaris. Sequence 36 AA; WO200264740-A2. 22-AUG-2002. 22-AUG-2002. Conotoxin; ABG99681; DX J J X B B X B X B X B X C X X X X X C B X C A

the disclosure of the invention Sequence 32 AA;

This invention describes novel conotoxin peptides from the cone snail, genus Conus which have analgesic activity and can act as a voltage-gated ion channel modulator or a ligand-gated ion channel modulator. The conotoxin peptide is useful as a pain-relieving agent for alleviating pain in an individual who is either exhibiting pain or is about to be subjected to a pain-causing event. The conotoxin peptide is also useful for treating or preventing disorders associated with voltage-gated ion channel disorders. The radiolabeled conotoxin peptide is also useful for disorders. The radiolabeled conotoxin peptide is also useful for screening an enew site on these receptors or channels, and for screening and identifying novel small molecules that interact with the above-mentioned channels or receptors, which are monoamine transporters. New cone snail conotoxin peptides, useful as a pain reliever for alleviating pain in an individual suffering from pain or who is about to be subjected to a pain-causing event, or for treating voltage-gated ion Claim 1; Page 275; 305pp; English. channel disorders

Type: P Check: 9467 February 20, 2007 16:53 ABG99681 Length: 32

ECRAWYAPCS PGAQCCSLLM CSKATSRCIL

Conus sp conotoxin-associated peptide SEQ ID 464. !!AA_SEQUENCE 1.0 ID ABG99679 standard; peptide; 27 AA (first entry) 17-JAN-2003 ABG99679

Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator; ligand-gated ion channel modulator; pain-relief.

Conus ammiralis.

WO200264740-A2.

22-AUG-2002

11-FEB-2002; 2002WO-US003887.

09-FEB-2001; 2001US-0267408P.

(COGN-)

COGNETIX INC. UNIV UTAH RES FOUND. (UTAH) Watkins M, Garrett JE, Cruz tty R, Jones RM, Schoenfeld Shetty R, Mcintosh JM, Walker CS, Olivera BM, Grilley M,

WPI; 2002-706921/76.

New cone snail conotoxin peptides, useful as a pain reliever for alleviating pain in an individual suffering from pain or who is about to be subjected to a pain-causing event, or for treating voltage-gated ion channel disorders

Claim 1; Page 274; 305pp; English.

This invention describes novel conotoxin peptides from the cone snail, genus Conus which have analgesic activity and can act as a voltage-gated ion channel modulator or a ligand-gated ion channel modulator. The conotoxin peptide is useful as a pain-relieving agent for alleviating pain in an individual who is either exhibiting pain or is about to be subjected to a pain-causing event. The conotoxin peptide is also useful for treating or preventing disorders associated with voltage-gated ion

channel disorders, ligand-gated ion channel disorders or receptor disorders. The radiolabeled conotoxin peptide is also useful for characterising a new site on these receptors or channels, and for screening and identifying novel small molecules that interact with the above-mentioned channels or receptors, which are monoamine transporters. ABG99360-ABG999853 represent the conotoxin protein and peptides described in the disclosure of the invention 88888888888

Sequence 27 AA;

P Check: 8960 Type: February 20, 2007 16:53 ABG99679 Length: 27

CSSWAKYCEV DSECCSEQCV RSYCAMW

!!AA_SEQUENCE 1.0 ID ABG99678 standard; peptide; 26

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ABG99678;

(first entry) 17-JAN-2003 Conus sp conotoxin-associated peptide SEQ ID 463

Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator; ligand-gated ion channel modulator; pain-relief.

Conus ammiralis.

WO200264740-A2.

22-AUG-2002.

11-FEB-2002; 2002WO-US003887.

09-FEB-2001; 2001US-0267408P.

(COGN-) COGNETIX INC. (UTAH) UNIV UTAH RES FOUND

38 Garrett JE, Cruz 1, Watkins M, Garret Shetty R, Jones RM, Mcintosh JM, Walker CS, S Olivera BM, Grilley M,

WPI; 2002-706921/76.

S New cone snail conotoxin peptides, useful as a pain reliever for alleviating pain in an individual suffering from pain or who is about to be subjected to a pain-causing event, or for treating voltage-gated ion channel disorders

Claim 1; Page 274; 305pp; English.

genus Conus which have an algest cattlifty and can act as a voltage-gated ion channel modulator or a ligand-gated ion channel modulator. The conotoxin peptide is useful as a pain-reliaving agent for alleviating pain in an individual who is either exhibiting pain or is about to be subjected to a pain-causing event. The conotoxin peptide is also useful for treating or preventing disorders associated with voltage-gated ion channel disorders. The radiolabeled conotoxin peptide is also useful disorders. The radiolabeled conotoxin peptide is also useful for characterising and identifying novel small molecules that interact with the above-mentioned channels or receptors.

ABG99360-ABG99853 represent the conotoxin protein and peptides described invention describes novel conotoxin peptides from the cone snail the disclosure of the invention

Sequence 26 AA;

Type: P Check: 6025 February 20, 2007 16:53 ABG99678 Length: 26

LCPDYTEPCS HAHECCSWNC HNGHCT

11AA SEQUENCE 1.0

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Conus ammiralis.
                                           WO200264740-A2.
                                ABG99676
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This invention describes novel conotoxin peptides from the cone snail, genus Conus which have analgesic activity and can act as a voltage-gated ion channel modulator or a ligand-gated ion channel modulator. The conotoxin peptide is useful as a pain-relieving agent for alleviating pain in an individual who is either exhibiting pain or is about to be subjected to a pain-causing event. The conotoxin peptide is also useful for treating or preventing disorders associated with voltage-gated ion channel disorders, ligand-gated ion channel disorders or receptor disorders. The radiolabeled conotoxin peptide is also useful for characterising a new site on these receptors or channels, and for screening and identifying novel small molecules that interact with the above-mentioned channels or receptors, which are monoamine transporters.
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ligand-gated ion channel modulator; pain-relief.
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Jones RM, Schoo
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ABG99676 standard; peptide; 39 AA
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Walker CS, S
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New cone snail conotoxin peptides, useful as a pain reliever for alleviating pain in an individual suffering from pain or who is about to be subjected to a pain-causing event, or for treating voltage-gated ion
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABG99689 standard; peptide; 28
                                           11-FEB-2002; 2002WO-US003887.
                                                                                     09-FEB-2001; 2001US-0267408P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-FEB-2002; 2002WO-US003887.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09-FEB-2001; 2001US-0267408P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (COGN-) COGNETIX INC.
(UTAH ) UNIV UTAH RES FOUND.
                                                                                                                              COGNETIX INC.
UNIV UTAH RES FOUND.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mcintosh JM,
Walker CS, SP
                                                                                                                                                                                                   Mcintosh JM,
                                                                                                                                                                                                                        Walker CS,
                                                                                                                                                                                                                                                                 WPI; 2002-706921/76.
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                                                                                                                                                                                                                                                                                                                                                                               channel disorders.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 31 AA;
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                                                                                                                                                                                                   BW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-JAN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-AUG-2002.
22-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Olivera BM,
Grilley M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABG99689;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    I AA SEQUENCE
                                                                                                                                                                                                   Olivera
                                                                                                                                                                                                                        Grilley
                                                                                                                                                     (UTAH )
                                                                                                                                (COGN-)
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This invention describes novel conotoxin peptides from the cone snail, genus Conus which have analguesic activity and can act as a voltage-gated ion channel modulator or a ligand-gated ion channel modulator. The conotoxin peptide is useful as a pain-relieving agent for alleviating pain in an individual who is either exhibiting pain or is about to be subjected to a pain-causing event. The conotoxin peptide is also useful for treating or preventing disorders associated with voltage-gated ion channel disorders. The radiolabeled conotoxin peptide is also useful characterising a new site on these receptors or channels, and for screening and identifying novel small molecules that interact with the above mentioned channels or receptors, which are monoamine transporters. In the disclosure of the invention alleviating pain in an individual suffering from pain or who is about to be subjected to a pain-causing event, or for treating voltage-gated ion channel disorders. Claim 1; Page 277; 305pp; English. ABG99689 Length: 28 Sequence 28 AA;

February 20, 2007 16:53 Type: P Check: 1490

DCYSWLGSCI APSQCCSEVC DYYCRLWR

11AA SEQUENCE 1.0 ID ABB96715 standard; peptide; 31 AA. (first entry) 12-JUL-2002 ABB96715;

Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant; neuroprotective; cerebroprotective; cardiovascular; antiinflammatory; antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic; anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy; neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia; stroke; cerebrovascular accident; brain trauma; spinal chord trauma; drowning; sulfocation; perinatal asphyxia; hypoglycaemic event; pain; migraine; inflammation; cardiovascular disorder; psychiatric disorder; psychosis; anxiety; schizophrenia. Omega-conopeptide Bu6.2 generic toxin sequence.

Conus bullatus

is Glu or gamma-carboxy Glu" 'label= OTHER 'note= "OTHER is Pro or Hydroxy Pro" 'note= "OTHER is Pro or Hydroxy Pro" 'note= "OTHER is Pro or Hydroxy Pro" note= "OTHER is Pro or Hydroxy Pro' is Pro or Hydroxy Pro' /label= OTHER /note= "OTHER is Trp or Bromo Trp" Location/Qualifiers 'label= OTHER 'note= "OTHER note= "OTHER label= OTHER label= OTHER label= OTHER label= OTHER Misc-difference 30 Misc-difference 31 Misc-difference Misc-difference Misc-difference Misc-difference Misc-difference

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The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the sequences encoding them, and propeptide sequences. The activity of the peptides of the invention may be described as, analgesic, anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective, cardiavascular, antiinflammatory, antiinflamatory, antiinflamatory, antiinflamatory, antiinflamatory, antiinflamatory, antiinflamatory antion expected to antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act by modulating the activity of voltage gated ion channels. They may be used for treating or preventing disorders associated with voltage gated ion channels such as neurological disorders, e.g. seizure (associated with replay), neurotoxic injury associated with conditions of phypoxia, anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g. migraine; inflammation or cardiovascular disorders. They may also be used for treating psychiatic disorders e.g. psychosis, anxiety or schizophrenia. The analgesic agents of the invention show diminished side effects and toxicity, and are non-addictive. The sequences given in records ABB96698-ABB96806 represent omega-conopeptide
                                                                                                                                                                                                                                                                                                                                          New omega-conopeptides useful for treating disorders associated with voltage gated ion channels e.g. pain, inflammation, neurologic or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   February 20, 2007 16:53 Type: P Check: 9600
                                                                                                                                                                                                                               Shon K;
                                                                                                                                                                                                                             Garrett JE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITXGTACKV XSQCCRGXCK NGRCTXSXSX X

    Watkins M,
Cartier GE;

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                                                                                       2000US-0219616P.
2001US-0265888P.
                                               23-JUL-2001; 2001WO-US023041.
                                                                                                                                                          (UTAH ) UNIV UTAH RES FOUND.
(COGN-) COGNETIX INC.
                                                                                                                                                                                                                               Mcintosh JM,
Jones RM, C
                                                                                                                                                                                                                                                                                                                                                                                            cardiovascular disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  generic toxin sequences
                                                                                                                                                                                                                                                                                                 WPI; 2002-257318/30.
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                                                                                          21-JUL-2000;
05-FEB-2001;
                                                                                                                                                                                                                               Olivera BM,
Jacobsen R,
31-JAN-2002
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Omega-conopeptide Ra6.2 toxin sequence. 11AA_SEQUENCE 1.0
XX
AC
ABB96883 standard; peptide; 27 AA, AC
ABB96883;
XX
XX
DT
12-JUL-2002 (first entry)
XX
XX
Comega-conopeptide Ra6.2 toxin sequence of the control of

Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant; neuroprotective; cerebroprotective; cardiovascular; antiinflammatory; antiingraine; antiidabetic; tranquiliser; vulnerary; antipsychotic; anxiolytic; neurolegitc; voltage gated ion channel; selzure; epileps; neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia; stroke; cerebrovascular accident; brain trauma; spinal chord trauma; drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain; migraine; inflammation; cardiovascular disorder; psychiatric disorder; psychosis; anxiety; schizophrenia.

WO200207675-A2

Misc-difference

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The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the peptides of the invention may be described as, analgesic, anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular, antiinflammatory, antiinflathe, antidiabetic, tranquiliser, vulnerary, antiinflammatory, antiinflathe, or properties of the invention act by modulating the activity of voltage gated ion channels. They may be used for treating or preventing disorders, e.g. seizure (associated ion channels such as neurological disorders, e.g. seizure (associated with epilepsy), neurotoxic injury associated with conditions of hypoxia, on channels such as reroke, cerebrovascular accident, brain or spinal chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g. migraine; inflammation or cardiovascular disorders. They may also be used for treating psychiatric disorders e.g. psychosis, anxiety or schizophrenia. The analgesic agents of the invention show diminished side effects and toxicity, and are non-addictive. The sequences given in records ABB96807-ABB96905 represent omega-conopeptide
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                                                                                                                                                                                                                                                                                                                                                                        New omega-conopeptides useful for treating disorders associated with voltage gated ion channels e.g. pain, inflammation, neurologic or cardiovascular disorders.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Type: P Check: 8400
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                                                                                                                                                                                                               Shon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'label= OTHER
'note≈ "OTHER is Pro or Hydroxy Pro"
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/note= "OTHER is Pro or Hydroxy Pro"
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                                                                                                                                                                                                               Garrett JE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Omega-conopeptide Vi6.1 generic toxin sequence.
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    Watkins M,
Cartier GE;

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 1(a); Page 72; 195pp; English.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CNARNSGCSQ HPQCCSGSCN KTAGVCL
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21-JUL-2000; 2000US-0219616P. 05-FEB-2001; 2001US-0265888P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        label= OTHER
                                                                                                  (UTAH ) UNIV UTAH RES FOUND
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                                                                                                                                                                                                                                            Jones RM,
                                                                                                                                                                                                           Mcintosh
                                                                                                                                          COGNETIX INC.
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                                                                                                                                                                                                                                            Jacobsen R,
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                                                                                                                                                                                                           Olivera BM,
                                                                                                                                          (COGN-)
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The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the sequences encoding them, and propeptide sequences. The activity of the peptides of the invention may be described as, analgesic, anticonvulsant, vasotropic, cardiant, neuroprofective, cerebroprotective, cardiovascular, antinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, antinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, antinflammatory, activity of voltage gated ion channels. They may be used for treating or preventing disorders associated with voltage gated ion channels such as neurological disorders, e.g. seizure (associated with epilepsy), neurotoxic injury associated with conditions of hypoxia, anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g. migraine; inflammation or cardiovascular disorders. They may also be used for treating psychiatric disorders e.g. psychosis, anxiety or schizophrenia. The analgesic agents of the invention show
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         diminished side effects and toxicity, and are non-addictive. The sequences given in records ABB96698-ABB96806 represent omega-conopeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant; neuroprotective; cerebroprotective; cardiovascular; antiinflammatory; antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic; anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy; neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia; stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New omega-conopeptides useful for treating disorders associated with voltage gated ion channels e.g. pain, inflammation, neurologic or cardiovascular disorders.
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                                                                                                                                                                                                                                                                                                                                                                                                                                              Shon K;
                  /label= OTHER /note= "OTHER is Glu or gamma-carboxy Glu"
                                                                           /label= OTHER
/note= "OTHER is Glu or gamma-carboxy Glu"
                                                                                                                                                                                                                                                                                                                                                                                                                                              Garrett JE,
                                                                                                                                    /label= OTHER //note= "OTHER is Trp or Bromo Trp"
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                                                                                                                                                                                                                                                                                                                                                                                                                                            4, Watkins M,
Cartier GE;
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                                                                                                                                                                                                                                                                                                                      21-JUL-2000; 2000US-0219616P.
05-FEB-2001; 2001US-0265888P.
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                                                                                                                                                                                                                                                                                                                                                                                                      COGNETIX INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2002-257318/30.
                                                        Misc-difference 30
                                                                                                                   Misc-difference 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 31 AA;
                                                                                                                                                                                                 WO200207675-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                              Olivera BM,
Jacobsen R,
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                                                                                                                                                                                                                                                                                                                                                                                                      (COGN-)
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Conus rattus.

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The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the peptides of the invention may be described as, analgesic, anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular, antinifilammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, antipaychotic, anxiolytic and neuroleptic. Peptides of the invention act by modulating the activity of voltage gated ion channels. They may be used for treating or preventing disorders, e.g. selzure (associated vith epilepsy), neurotoxic injury associated with conditions of hypoxia, anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal anoxia, drowning, suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g. migraine; inflammation or cardiovascular disorders. They may also be used for treating psychiatric disorders e.g. psychosis, anxiety or senizophrenia. The analgesic agents of the invention show diminished side effects and toxicity, and are non-addictive. The sequences given in records ABB96807-ABB96905 represent omega-conopeptide
drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
migraine; inflammation; cardiovascular disorder; psychiatric disorder;
psychosis; anxiety; schizophrenia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    New omega-conopeptides useful for treating disorders associated with voltage gated ion channels e.g. pain, inflammation, neurologic or
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                                                                                                                                                                                                                                                                                                                                                       Garrett JE,

 Watkins M,
Cartier GE;

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                                                                                                                                                                                              23-JUL-2001; 2001WO-US023041.
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2001US-0265888P
                                                                                                                                                                                                                                                                                            (UTAH ) UNIV UTAH RES FOUND.
(COGN-) COGNETIX INC.
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                                                                                                                   WO200207675-A2
                                                                               Conus rattus.
                                                                                                                                                                                                                                     21-JUL-2000;
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                                                                                                                                                                                                                                                                                                                                                                           Jacobsen R,
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ABB96884 Length: 27 February 20, 2007 16:53

CNARNSGCSQ HPQCCSGSCN KTLGVCL

11AA SEQUENCE 1.0 ID ABB96780 standard; peptide; 27 AA.

ABB96780;

12-JUL-2002 (first entry)

Omega-conopeptide Ra6.3 generic toxin sequence.

neuroprotective; cerebroprotective; cardiovascular; antinflammatory; antingraine; antidiabetic; tranquiliser; vulnerary; antipsychotic; anxiolytic; neuroleptic; voltage gated ion channel; serizure; epilepsy; neurological disorder; neurotoxic injury; hypoxia; anoxia; lschaemia; stroke; cerebrovascular accident; brain trauma; spinal chord trauma; drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain; migraine; inflammation; cardiovascular disorder; psychiatric disorder; psychosis; anxiety; schizophrenia. Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;

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The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the sequences encoding them, and propeptide sequences. The activity of the peptides of the invention may be described as, analgesic, anticonvulsant, associated, antidiabetic, tranquiliser, vulnerary, antinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, antinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, by modulating the activity of voltage gated ion channels. They may be used for treating or preventing disorders, essociated with voltage gated ion channels such as neurological disorders, e.g. seizure (associated with epilepsy), neurotoxic injury associated with conditions of hypoxic, anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal contains, drowning, suffecation, perinatel asphyxia or hypoglycaemic events; pain e.g. migraine; inflammation or cardiovascular disorders. They may also be used for treating psychiatric disorders e.g. psychosis, anxiety or schizophrenia. The analgesic agents of the invention show diminished side effects and toxicity, and are non-addictive. The sequences given in records ABB96698-ABB96806 represent omega-conopeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant; neuroprotective; cerebroprotective; cardiovascular; antiinflammatory; antimigataine; antidiabetic; tranquilisest; vulnerary; antipsychotic; anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy; neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia; stroke; cerebrovascular accident; brain trauma; spinal chord trauma; stroke; cerebrovascular accident; brain trauma; spinal chord trauma; drowning; sulfocation; perinatal asphyxia; hypoglycaemic event; pain; migraine; inflammation; cardiovascular disorder; psychiatric disorder; psychosis; anxiety; schizophrenia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New omega-conopeptides useful for treating disorders associated with voltage gated ion channels e.g. pain, inflammation, neurologic or
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                                                                                                                                                                                                                                                                                                                                                                                                           Shon K;
                                                                                                     /note= "OTHER is Pro or Hydroxy Pro"
                                                                                                                                                                                                                                                                                                                                                                                                           Garrett JE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Omega-conopeptide Ra6.1 toxin sequence.

    Watkins M,
Cartier GE;

                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 2; Page 59; 195pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CNARNSGCSQ HXQCCSGSCN KTLGVCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /label= OTHER
                                                                                                                                                                                                                                                                               21-JUL-2000; 2000US-0219616P.
05-FEB-2001; 2001US-026588P.
                                                                                                                                                                                                                                     23-JUL-2001; 2001WO-US023041.
                                                                                                                                                                                                                                                                                                                                            (UTAH ) UNIV UTAH RES FOUND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                           Olivera BM, Mcintosh JM,
Jacobsen R, Jones RM, Ca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cardiovascular disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           generic toxin sequences
                                                                                                                                                                                                                                                                                                                                                                     (COGN-) COGNETIX INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2002-257318/30
                                                            Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 27 AA;
                                                                                                                                                 WO200207675-A2
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Conus rattus.

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The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the sequences encoding them, and propeptide sequences. The activity of the peptides of the invention may be described as, analgesic, anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular, antinflammatory, antingraine, antidiabetic, tranquiliser, vulnerary, antipysychotic, anxiolytic and neuroleptic. Peptides of the invention act by modulating the activity of voltage gated ion channels. They may be used for treating or preventing disorders associated with voltage gated ion channels such as neurological disorders, e.g. seizure (associated with epilepsy), neurotoxic injury associated with conditions of hypoxia, anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal chord trauma, drowning, suffocation, perinatal asphyxia or hyposlycaemic events; pain e.g. migraine; inflammation or cardiovascular disorders. They may also be used for treating psychiatric disorders engence given in records ABB96807-ABB96905 represent omega-conopeptide
                                                                                                                                                                                                                                                                                                                                                                                  omega-conopeptides useful for treating disorders associated with age gated ion channels e.g. pain, inflammation, neurologic or
                                                                                                                                                                                                                                                                                        4, Watkins M,
Cartier GE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 1(a); Page 72; 195pp; English.
                                                                                                                                                                      21-JUL-2000; 2000US-0219616P. 05-FEB-2001; 2001US-0265888P.
                                                                                                                                  23-JUL-2001; 2001WO-US023041.
                                                                                                                                                                                                                              (UTAH ) UNIV UTAH RES FOUND.
                                                                                                                                                                                                                                                                                      Olivera BM, Mcintosh JM,
                                                                                                                                                                                                                                                                                                                                                                                                                          cardiovascular disorders.
                                                                                                                                                                                                                                                                                                            Jones RM,
                                                                                                                                                                                                                                                  (COGN-) COGNETIX INC.
                                                                                                                                                                                                                                                                                                                                                WPI; 2002-257318/30.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       toxin sequences
                                                      WO200207675-A2.
                                                                                            31-JAN-2002.
                                                                                                                                                                                                                                                                                                        Jacobsen R,
                                                                                                                                                                                                                                                                                                                                                                                                        voltage
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Sequence 27 AA;

ABB96882 Length: 27 February 20, 2007 16:53 Type: P Check: 8346

CNARNDGCSQ HSQCCSGSCN KTAGVCL

ABB96820 standard; peptide; 31 AA. ! IAA_SEQUENCE 1.0

ABB96820;

12-JUL-2002 (first entry)

Omega-conopeptide Bu6.2 toxin sequence.

Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant; neuroprotective; cerebroprotective; cardiovascular; antinflammatory; antipagaine; antidiabetic; tranquiliser; vulnerary; antipaychotic; anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy; neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia; stroke; cerebrovascular accident; brain trauma; spinal chord trauma; drowning; sulfocation; perinatal asphyxia; hypoglycaemic event; pain; migraine; inflammation; cardiovascular disorder; psychiatric disorder; psychosis; anxiety; schizophrenia.

Conus bullatus

WO200207675-A2

31-JAN-2002.

23-JUL-2001; 2001WO-US023041.

21-JUL-2000; 2000US-0219616P. 05-FEB-2001; 2001US-0265888P. 21-JUL-2000;

(UTAH) UNIV UTAH RES FOUND

(COGN-) COGNETIX INC

Garrett JE, Watkins M, Cartier GE; Mcintosh JM, Jones RM, Car Olivera BM, Jacobsen R,

WPI; 2002-257318/30.

Shon K;

Garrett JE,

New omega-conopeptides useful for treating disorders associated with voltage gated ion channels e.g. pain, inflammation, neurologic or cardiovascular disorders.

Claim 1(a); Page 71; 195pp; English.

The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the peptides of the invention may be described as, analgesic, anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular, antiniflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, antipisychotic, anxiolytic and neuroleptic. Peptides of the invention act by modulating the activity of voltage gated ion channels. They may be used for treating or preventing disorders, e.g. seizure (associated vith epilepsy), neurotoxic injury associated with conditions of hypoxia, anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g. migraine; inflammation or cardiovascular disorders. They may also be used for treating psychiatric disorders e.g. psychosis, anxiety or schizophrenia. The analgesic agents of the invention show diminished side effects and toxicity, and are non-addictive. The sequences given in records ABB96807-ABB96905 represent omega-conopeptide toxin sequences

Sequence 31 AA;

Type: P Check: 8422 ABB96820 Length: 31 February 20, 2007 16:53

CITPGTRCKV PSQCCRGPCK NGRCTPSPSE W

!!AA_SEQUENCE 1.0 ID ABB96899 standard; peptide; 31 AA.

ABB96899;

12-JUL-2002 (first entry)

Omega-conopeptide Vi6.1 toxin sequence.

Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant; neuroprotective; cerebroprotective; cardiovascular; antiinflammatory; antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic; anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy; neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia; stroke; cerebrovascular accident; brain trauma; spinal chord trauma; drowning; sulfocation; perintal asphyxia; hypoglycaemic event; pain; migraine; inflammation; cardiovascular disorder; psychiatric disorder; psychosis; anxiety; schizophrenia.

Conus viola

WO200207675-A2

31-JAN-2002.

23-JUL-2001; 2001WO-US023041.

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The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the peptides of the invention may be described as, analgesic, anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular, antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act by modulating the activity of voltage gated ion channels. They may be used for treating or preventing disorders, e.g. seizure (associated ion channels such as neurological disorders, e.g. seizure (associated with epilepsy), neurotoxic injury associated with conditions of hypoxia, anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g. migraine; inflammation or cardiovascular disorders. They may also be used for treating psychiatric disorders e.g. psychosis, anxiety or schizophrenia. The analgesic agents of the invention show diminished side effects and toxicity, and are non-addictive. The sequences given in records ABB96807-ABB96905 represent omega-conopeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      neuroprotective; cerebroprotective; cardiovascular; antiinflammatory; antimugraine; antidiabetic; tranquiliser; vulnerary; antipsychotic; antidiabetic; tranquiliser; vulnerary; antipsychotic; anxiolytic; neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia; stroke; cerebrovascular accident; brain trauma; spinal chord trauma; drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain, migraine; inflammation; cardiovascular disorder; psychosis; anxiety; schizophrenia.
                                                                                                                                                                                                                                      New omega-conopeptides useful for treating disorders associated with voltage gated ion channels e.g. pain, inflammation, neurologic or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          February 20, 2007 16:53 Type: P Check: 7783
                                                                                                                                        Shon K;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /label= OTHER
/note= "OTHER is Pro or Hydroxy Pro"
                                                                                                                                        Garrett JE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Omega-conopeptide Ra6.2 generic toxin sequence.
                                                                                                                                      M, Watkins M,
Cartier GE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITLGTRCKV PSQCCRSSCK NGRCAPSPEE
                                                                                                                                                                                                                                                                                                                        Claim 1(a); Page 72; 195pp; English
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ID ABB96779 standard; peptide; 27 AA.
                21-JUL-2000; 2000US-0219616P
                                     05-FEB-2001; 2001US-026588PP
                                                                           (UTAH ) UNIV UTAH RES FOUND.
(COGN-) COGNETIX INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12-JUL-2002 (first entry)
                                                                                                                                                                                                                                                                              cardiovascular disorders.
                                                                                                                                        Mcintosh JM,
                                                                                                                                                           Jones RM,
                                                                                                                                                                                                  WPI; 2002-257318/30.
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Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 31 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 toxin sequences
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                                                                                                                                        Olivera BM,
                                                                                                                                                             Jacobsen R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABB96779;
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The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the peptides of the invention may be described as, analgesic, anticonvulsant, vasotropic, cardiant, neuroprotective, crebroprotective, cardiovascular, antiniflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, antiniflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, antiniflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, and modulating the activity of voltage gated ion channels. They may be used for treating or preventing disorders associated with voltage gated ion channels such as neurological disorders, e.g. seizure (associated with epilepsy), neurotoxic injury associated with conditions of hypoxia, anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal covents; pain e.g. migraine; inflammation or cardiovascular disorders. They may also be used for treating psychiatric disorders e.g. psychosis, anxiety or schizophrenia. The analgesic agents of the invention show diminished side effects and toxicity, and are non-addictive. The consequences given in records ABB96698-ABB96006 represent omega-conopeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant; neuroprotective; carebroprotective; cardiovascular; antiinflammatory; antimigatine; antidiabetic; tranquiliser; vulnerary; antipsychotic; anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy; neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia; stroke; cerebrovascular accident; brain trauma; spinal chord trauma; drowning; auffocation; parinatal asphyxia; hypoglycaemic event; pain; migraine; inflammation; cardiovascular disorder; psychiatric disorder;
                                                                                                                                                                                                                                                          New omega-conopeptides useful for treating disorders associated with voltage gated ion channels e.g. pain, inflammation, neurologic or cardiovascular disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             February 20, 2007 16:53 Type: P Check: 8496
                                                                                                                                                                 Shon K;
                                                                                                                                                                 Garrett JE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Omega-conopeptide Ra6.1 toxin sequence.
                                                                                                                                                               1, Watkins M,
Cartier GE;
                                                                                                                                                                                                                                                                                                                                                      Example 2; Page 59; 195pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CNARNSGCSQ HXQCCSGSCN KTAGVCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ||AA_SEQUENCE 1.0
|ID ABB96778 standard; peptide; 27 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            psychosis; anxiety; schizophrenia
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05-FEB-2001; 2001US-0265888P.
23-JUL-2001; 2001WO-US023041.
                                          21-JUL-2000; 2000US-0219616P.
05-FEB-2001; 2001US-0265888P.
                                                                                                        (UTAH ) UNIV UTAH RES FOUND.
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                                                                                                                                                                   Mcintosh JM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   generic toxin sequences
                                                                                                                                                                                      Jones RM,
                                                                                                                             (COGN-) COGNETIX INC
                                                                                                                                                                                                                             WPI; 2002-257318/30.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 27 AA;
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                                                                                                                                                                 Olivera BM,
Jacobsen R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31-JAN-2002.
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The invention relates to isolated omega-conopeptides, nucleic acid sequences encoding them, and propeptide sequences. The activity of the peptides of the invention may be described as, analgesic, anticonvulsant, vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular, antifinammatory, antimigraine, antidiabetic, tranquiliser, vulnerary, antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act by modulating the activity of voltage gated ion channels. They may be used for treating or preventing disorders, e.g. seizure (associated with epilepsy), neurological disorders, on the principsy), neurological disorders, on the principsy), neurological disorders, on trans, ischaemia, stroke, cerebrovascular accident, brain or spinal chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic events; pain e.g. migraine; inflammation or cardiovascular disorders. They may also be used for treating psychiatric disorders e.g. psychosis, anxiety or schizophrenia. The analgesic agents of the invention show diminished side effects and toxicity, and are non-addictive. The sequences given in records ABB96698-ABB96806 represent omega-conopeptide
                                                                                                                                                                                                                                                                                                         New omega-conopeptides useful for treating disorders associated wi voltage gated ion channels e.g. pain, inflammation, neurologic or cardiovascular disorders.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 2; Page 58; 195pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CNARNDGCSQ HSQCCSGSCN KTAGVCL
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                              (UTAH ) UNIV UTAH RES FOUND.
(COGN-) COGNETIX INC.
                                                                                                                                             Mcintosh JM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (UYHU-) UNIV HUNAN NORMAL
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                                                                                                                                                                                   Jones RM,
                                                                                                                                                                                                                                                    WPI; 2002-257318/30.
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                                                                                                                                             Olivera BM,
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                                                                                                                                                                                   Jacobsen
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ΩX
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1!AA_SEQUENCE 1.0 ID ADL11898 standard; protein; 33 AA. (first entry) HWTX-I protein sequence

Bacillus thuringiensis; spider toxin gene; biopesticide.

Bacillus thuringiensis,

18-JUL-2001; 2001CN-00114592

Liang S, Ding X; xia L,

WPI; 2003-483110/46. N-PSDB; ADL11897.

New strain of Bacillus thuringiensis, containing a spider toxin gene and a promoter sequence, is used as a biopesticide.

Disclosure; SEQ ID NO 2; 28pp; Chinese

```
The present invention relates to a Bacillus thuringiensis strain comprising a spider toxin gene and a strong promoter sequence. The B.thuringiensis is used as a biopesticide as it can produce the B.thuringiensis toxin and a spider toxin. The present sequence represents a HWTX-I protein sequence.
                                                                                                                                                                                                                   ADL11898 Length: 33 February 20, 2007 16:53 Type: P Check: 2431
                                                                                                                                                                  Sequence 33 AA;
        8888888
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Shon K;

Garrett JE,

Watkins M, Cartier GE;

ACKGVFDACT PGKNECCPNR VCSDKHKWCK WKL

Selenocosmia huwena spider venom peptide 1QK6_A (Huwenotoxin-I), SEQ:12. Mechano-sensitive channel; cation-selective stretch-activated channel; inhibitor peptide; GSMTx-4; spider venom; atrial fibrillation; antiarrhythmic; 1QKG_A; Huwenotoxin-I. Ź 11AA_SEQUENCE 1.0 ID ADS31829 standard; peptide; 33 (first entry) 30-DEC-2004 ADS31829;

Ornithoctonus huwena.

WO2004085647-A1.

07-OCT-2004.

25-MAR-2004; 2004WO-JP004190.

26-MAR-2003; 2003JP-00085666.

(PHAR-) PHARMADESIGN INC

Sokabe M, Yokotagawa T,

Type: P Check: 8346

Ë

WPI; 2004-719044/70.

Novel polypeptides such as TVP003, TVP004, TVP005 or their salts, which specifically inhibits activity of mechano-sensitive channel, useful for treating atrial fibrillation.

Example 1; SEQ ID NO 12; 49pp; Japanese.

The invention relates to peptides (ADS31818-ADS31820 and ADS31833-ADS31834) or their salts which specifically inhibit the activity of mechano-sensitive channels. The peptides are based on the sequence of ragments of the known Grammostola spatulata spider venom peptide GSMTx-4 ADS31821 which blocks cation-selective stretch-activated channels, and with the exception of TVP003 ADS31818, comprise at least one Cys to Ala substitution. The entire GSMTx-4 sequence is specifically excluded from the scope of the invention. The invention also relates to polymucleotides and host cells comprising such polymucleotides. The peptides, and vectors and host cells comprising such polymucleotides. The presents sequence invention are useful for treating atrial fibrillation and for studying the mechano-sensitive channels. The present sequence represents the Selenocosmia huwens (Ornithoctonus huwens) spider venom peptide lQKG A (also known as Huwenotoxin-I) used in an example of the invention. Note: No graphical information is provided regarding disulphide bonds in this peptide (in contrast to the Grammostola

Sequence 33 AA;

February 20, 2007 16:53 Type: P Check: 2431 ADS31829 Length: 33

ACKGVFDACT PGKNECCPNR VCSDKHKWCK WKL

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! FINDPATTERNS on pir: * allowing 0 mismatches
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1 <x{0,6}cx{5,6}cx{4}(E,Q)ccx{3,4}cx{3,6}cx{0,9}> - pattern denothed

A58175 ck: 8971 len: 27 | delta-conotoxin TxVIIA - cone shell (Conus <x{0,6}Cx{5,6}Cx{4} (E,0)CCx{3,4}Cx{3,6}Cx{0,9}>
Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{3}Cx{3}Cx{3}Cx{3}Cx{3}Cx{3}Cx{4}Cx{4}Cx{4}Cx{4}Cx{4}Cxxx{4}Cxxx{4}Cxxx{4}Cxxx{4}Cxxx{4}Cxxx{4}Cxxx{4}Cxxx{4}Cxxx{4}Cxxx{4}C Accession#

to match to dighinant to assess ck: 2431 len: 33 ! huwentoxin-I - Chinese bird spider degu

<X{0,6}CX{5,6}CX{4}(E,0)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}CX{5}(E)CCX{4}CX{6}CX{4}

Databases searched: NBRF, Release 80.0, Released on 31Dec2004, Formatted on 21Jun2005

Total finds: Total length: Total sequences: CPU time:

2 96,216,763 283,416 52.98

A;Reference number: A58175; MUID:97022130; PMID:8868490 A;Contents: correction A;Accession: A58175

Ajfolecule type: protein
A;Residues: 1-27 cNAK>
A;Residues: 1-27 cNAK>
A;Residues: 1-27 cNAK>
A;Coss-references: UNIRROT: P24160; UNIPARC: UPI00001287AE
A;Cross-references: UNIRROT: P24160; UNIPARC: UPI00001287AE
B;Fainzilber, M.; Gordon, D.; Hasson, A.; Spira, M.E.; Zlotkin, E.
Eur. J. Biochem. 202, 589-595, 1991
A;Title: Mollusc-specific toxins from the venom of Conus textile neovicarius.
A;Reference number: S19553; MUID: 92104183; PMID: 1761058
A;Accession: S19620
A;Molecule type: protein
A;Residues: 'W', 2-25 cFAI>
A;Cross-references: UNIPARC: UPI000017361B

C; Superfamily: omega-conotoxin C; Keywords: amidated carboxyl end; carboxyglutamic acid; neurotoxin; sodium channel inhibitor; venom F: 1-15, 8-19, 14-24/Disulfide bonds: #status predicted F: 9: 11/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental F: 27/Modified site: amidated carboxyl end (Phe) #status experimental

A58175 Length: 27 February 20, 2007 13:58 Type: P Check: 8971

1 GEGYSTYCEV DSECTOR OF REYCTLE

Xaa= Des-Xaa

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yer Accession # to match suference to alignment
Wed Feb 21 10:04:12 2007
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Ply 337479 - huwentoxin-1 - Chinese bird spider
C; Species: Selenocosmia huwena (Chinese bird spider)
C; Species: Selenocosmia huwena (Chinese bird spider)
C; Species: Selenocosmia huwena (Chinese bird spider)
C; Daccesion: A37479; JCI089
R; Liang, S.P.; Zhang, D.S.; Pgn, X.; Chen, Q. Rhuwentoxin-I, a neurotoxin
R; Liang, S.P.; Zhang, D.S.; Pgn, X.; Chen, Q. Rhuwentoxin-I, a neurotoxin
purified from the venom of the Chinese bird spider Selenocosmia huwena.
A; Recession: A37479; MUID:94024948; PMID:8212049
A; Rocession: A133 < LIA>
A; Residues: 1-33 < LIA>
A; Congarreferences: UNIPRC: Joing, H.; Gu, X.C.
Acta SCi. Natur. Univ. Pekin. 29, 668-674, 1993
A; Title: Secondary structure study of huwentoxin-I, a neurotoxin from the venom of the spider Selenocosmia huwena.
A; Reference number: JCI089
A; Molecule type: protein
A; Residues: 1-33 < LIZ>
A; Cross-references: UNIPARC: UPI000046672
C; Comment: This peptide is the major active protein component of venom in this species. The crude venom was shown to act as a presynaptic neurotoxin, senom
C; Keywords: presynaptic neurotoxin; venom
F; 2-17, 9-22, 16-29/Disulfide bonds: #status experimental 149A_SEQUENCE 1.0

A37479 Length: 33 February 20, 2007 13:58 Type: P Check: 2431

1 ACKGVFDACT PGKNECCPNR VCBDKHKWCK WKL

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2,849,598 09:45.18

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Total sequences:
CPU time:
                                                                                                                                                                                                                                                                                                                                                                                                        ! P56711 conus pennaceus (feathered cone). ga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ! P58609 isyndus obscurus (assassin bug). tox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ! P58425 heteropoda venatoria (giant crab spi
                                                                           ! P58608 agriosphodrus dohrni (assassin bug)
                                                                                                                                                                                    ! P24160 conus textile (cloth-of-gold cone).
                                                                                                                                                                                                                                                                                             ! P58922 conus textile (cloth-of-gold cone).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ! P83591 selenocosmia hainana (chinese bird
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ! P83464 selenocosmia hainana (chinese bird
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
CX{6}CX{4}(E)CCX{3}CX{4}CX{3}
                                                                                                                                                                                                                                                                                                                          <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
x{5}Cx{6}CX{4}(E)CCX{3}Cx{3}CX{3}CX{3}
GMWGECKDGLFTCLAPSECCSEDCEGSCTMW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
! FINDPATTERNS on uniprot: * allowing 0 mismatches
                                                                                                                                                                                    k: 8971 len: 27
                                                                                                                                                                                                                                                                                               ck: 6937 len: 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IOBL_ISYOB ck: 9883 len: 36
                                                                                                                                                                                                                                                                                                                                                                                                      CXG7A_CONPE ck: 385 len: 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TXHA1_SELHA ck: 2511 len: 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TXHA3_SELHA ck: 2983 len: 33
                                                                           ADO1_AGRDO ck: 7710 len: 35
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! P61232 macrothele raveni (spider). raventox

TXR3_MACRV ck: 2020 len: 29

Databases searched: UNIPROT, Release 7.2, Released on 7Mar2006, Formatted on 7Mar2006

9 925,015,592 Total finds: Total length:

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Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms Distributed under the Creative Commons Attribution-NoDerivs License
                                                                                                                                                                                                                       TISSUE=Saliva;
MEDLINE=21316029; PubMed=11423127; DOI=10.1016/S0014-5793(01)02558-3;
Corzo G., Adachi-Akahane S., Nagao T., Kusui Y., Nakajima T.;
"Novel peptides from assassin bugs (Hemiptera: Reduviidae): isolation, chemical and biological characterization.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam, PF08117; Toxin 30; 1. PROSITE, PS60010; ASSASSIN BUG TOXIN; 1. 3D-structure; Calcium channel Inhibitor; Direct protein sequencing; Ionic channel inhibitor; Neurotoxin; Toxin.
                                                                                                                                                                                                                                                                                                                                                                                       "Solution structure of AbO1, a toxin extracted from the saliva of assassin bug, Agriosphodrus dohrni."; Proteins 54:195-205(2004).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Check: 7710
                                                                                                                                                                                                                                                                                                                               STRUCTURE BY NMR, AND FUNCTION.
PubMed=146961811, DOL=10.1002/prct.10513;
Bernard C., Corzo G., Adachi-Akahane S., Foures G., Kanemaru K.,
Furukawa Y., Nakajima T., Darbon H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                      -i- FUNCTION: Binds reversibly and blocks P/Q-type voltage-gated calcium channels.
                                                                                                                   Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Paraneoptera; Hemiptera; Euhemiptera; Heteroptera;
Panheteroptera; Cimicomorpha; Reduviidae; Harpactorinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                -!- SUBCELLULAR LOCATION: Secreted protein.
-!- TISSUE SPECIFICITY: Produced by the venomous saliva.
-!- MASS SPECTROMETRY: MW=3781.3; METHOD=MALDI; RANGE=1-35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-MAX-1992, integrated into UniProtKB/Swiss-Prot.
30-MAY-2000, sequence version 2.
30-MAY-2006, entry version 41.
Conotoxin TxVIIA (FIRA).
Conus textile (Cloth-of-gold cone).
Eukaryota, Metazoa; Mollusca; Gastropoda; Orthogastropoda;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NOTE=Ref.1.
-!- SIMILARITY: Belongs to the assassin bug toxin family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Type: P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3787 MW; 3E83D94C6D614E88 CRC64;
                                           23-JAN-2002, integrated into UniProtKB/Swiss-Prot.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /FTId=PRO_0000044889
               35 A.A.
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                                                                                                                                                                                                          PROTEIN SEQUENCE, AND MASS SPECTROMETRY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Toxin Adol
                                                                                                                                                                                                                                                                                                                                                                         ., Darbon H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR012325; Ass_bug_toxin.
                                                                                                   Agriosphodrus dohrni (Assassin bug)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                 PRT;
                                                         23-JAN-2002, sequence version 1. 07-FEB-2006, entry version 30.
               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PDB; 1LMR; NMR; A=1-35.
                                                                                                                                                           Agriosphodrus.
NCBI_TaxID=184613;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35 AA;
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!! AA SEQUENCE 1.0
              ADO1 AGRDO
P58608;
                                                                                     Toxin Adol
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DISULFID
DISULFID
STRAND
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Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms Distributed under the Creative Commons Attribution-NoDerivs License of a cysteine-rich peptide toxin with gamma-carboxyglutamic acid, TxVIIA, from the sea snall, Conus taxtile.";

Protein Sci. 5:524-5105). M
Protein Sci. 5:524-5105). May exert its effects at the level of Furie B., Roepstorff P.; article determination of two conotoxins from Conus textile by a "Structure determination of two combination of matrix-assisted laser desorption/ionization time-offilight and electrospray ionization mass spectrometry and biochemical MEDLINE=20146306; PubMed=10679974; DOI=10.1002/(SICI)1096-9888(200002)35:2<145::AID-JMS922>3.0.CO;2-I; Kalume D.E., Stenflo J.P., Czerwiec E., Hambe B., Furie B.C., the neuromuscular junction.
-! SUBCELULAR LOCATION: Secreted protein.
-!- TISSUE SPECIFICITY: Expressed by the venom duct.
-!- PTM: Contains three disulfide bonds.
-!- PTM: SPECIROMETRY: MW=3088.9; METHOD=Electrospray; RANGE=1-27; PIR; A58175; A58175. Amidation; Direct protein sequencing; Gamma-carboxyglutamic acid; Check: 8971 Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda; Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda; Neogastropoda; Conoidea; Conidae; Conus. Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda; STRAIN=Neovicarius; TISSUE=Venom; MEDLINE=92104183; PubMed=1761058; Fainzilber M., Gordon D., Hasson A., Spira M.E., Zlopkin B.; "Mollusc-specific toxins from the venom of Conus textile SEQUENCE REVISION TO 1 AND C-TERMINUS, AND MASS SPECTROMETRY MEDLINE=97022130; PubMed=8868490; -!- SIMILARITY: Belongs to the conotoxin O superfamily Phenylalanine amide. D7A49781300FE1E7 CRC64; Type: P Nakamura T., Yu Z., Fainzilber M., Burlingame A.L., "Mass spectrometric-based revision of the structure Conotoxin TxVIIA. /FTId=PRO 0000044485 26-JUL-2002, integrated into UniProtKB/Swiss-Prot 4-carboxyglutamate. 4-carboxyglutamate 31 AA February 16, 2007 16:49 漱 PROTEIN SEQUENCE, AND MASS SPECTROMETRY. Conoidea; Conidae; Conus Eur. J. Biochem. 202:589-595(1991). 1 CEGYSTYCEV DSHOOSDNCV RSYCTLF PRT; Conus textile (Cloth-of-gold cone) 26-JUL-2002, sequence version 1. 07-FEB-2006, entry version 24. Conotoxin Gla(1)-TxVI. 3008 MW; STANDARD; 27 Neurotoxin, Toxin. 27 AA; CX7A_CONTE Length: 27 NCBI_TaxID=6494; PROTEIN SEQUENCE NCBI_TaxID=6494; 9 13 27 NOTE=Ref. 2. HASEQUENCE 1.0 neovicarius MOD_RES MOD_RES SEQUENCE CXG6 CON P58922; MOD RES PEPTIDE

J. Mass Spectrom. 35:145-156(2000).
--- SUBCELLULAR LOCATTON: Secreted protein.
--- TISSUE SPECTRITY: Expressed by the venom duct.
--- MASS SPECTROMETRY: MW=3672.78; METHOD=MALDI; RANGE=1-31;

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-!- SIMILARITY: Belongs to the conotoxin O superfamily.

Bromination; Direct protein sequencing; Gamma-carboxyglutamic acid;

Conotoxin Gla(1)-TxVI/ /FTId=PRO_0000044879.

33

Hydroxylation, Toxin.

PEPTIDE MOD RES

4-carboxyglutamate. 4-carboxyglutamate.

4-hydroxyproline.

RES RES

SOUTH

RES RES

9

6'-bromotryptophan.

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"Gamma-conotoxin-PnVIIA, a gamma-carboxyglutamate-containing peptide agonist of neuronal pacemaker cation currents."; Biochemistry 37:1470-1477 (1998).
                                                                                                                                                                             MEDLINE=98145210; PubMed=9484216; DOI=10.1021/bi971571f;
Fainzilber M., Nakamura T., Lodder J.C., Zlotkin E., Kits K.S.,
                                                                                              Eukaryota, Metazoa, Mollusca, Gastropoda, Orthogastropoda,
Apogastropoda, Caenogastropoda, Sorbeoconcha, Hypsogastropoda,
Neogastropoda, Conoidea, Conidae, Conus.
NCBI_TaxID=37335;
                                      30-MAY-2000, integrated into UniProtKB/Swiss-Prot.
                                                                                                                                                        PROTEIN SEQUENCE, AND MASS SPECTROMETRY
                                                                                    Conus pennaceus (Feathered cone).
                                                 30-MAY-2000, sequence version 1. 07-FEB-2006, entry version 32. Gamma-conotoxin PnVIIA.
                                                                                                                                                                                                       Burlingame A.L.;
!!AA_SEQUENCE 1.0
ID _CXG7A_CONPE
AC P56711;
                8014448
```

-I-FUNCTION: May act on a voltage-gated nonspecific cation channel.

Triggers depolarization and firing of action potential bursts in the caudodorsal neurons of lymnaea. This effect is due to activation or enhancement of a slow inward cation current that may underly endogenous bursting activity of these neurons.

-I-SIBCELMULAR LOCATION: Secreted protein.

-I-TISSUE SPECIFICITY: Expressed by the venom duct.

-I-PTM: Contains three disullide bonds.

-I-MASS SPECTROMETRY: MW-3718.4; METHOD=Electrospray; RANGE=1-32; -!- SIMILARITY: Belongs to the conotoxin O superfamily.

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Direct protein sequencing; Gamma-carboxyglutamic acid; Hydroxylation; 4-hydroxyproline. 78CCFC5E02FEB59C CRC64; Gamma-conotoxin PnVIIA. /FTId=PRO_0000044877. 4-carboxyglutamate. 4-carboxyglutamate. Neurotoxin; Toxin. 14 26 31 MOD_RES MOD_RES MOD_RES PEPTIDE

CXG7A_CONPE Length: 32 February 16, 2007 16:49 Type: P Check: 385

3621 MW;

32 AA;

SEQUENCE

DCTSWFGRCT VNSECCSNSC DQTYCELYAF

Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms Distributed under the Creative Commons Attribution-NoDerivs License Corzo G., Adachi-Akahane S., Nagao T., Kusui Y., Nakajima T.;
"Novel peptides from assassin bugs (Hemiptera: Reduviidae): isolation, chemical and biological characterization.";
FEBS Lett. 499:256-261(2001).
-!- FUNCTION: Binds reversibly and blocks N-type voltage-gated calcium channels (By similarity).
-!- SUBCELLULAR LOCATION: Secreted protein.
-!- TISSUE SPECIFICITY: Produced by the venomous saliva. T., Kusui Y., Nakajima T.; (Hemiptera: Reduviidae): isolation, MEDLINE=21316029; PubMed=11423127; DOI=10.1016/S0014-5793(01)02558-3; Neoptera; Paraneoptera; Hemiptera; Buhemiptera; Heteroptera; Panheteroptera; Cimicomorpha; Reduviidae; Harpactorinae; Isyndus. February 16, 2007 16:49 Type: P Check: 9883 Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota; -!- MASS SPECTROMETRY: MM=3938.5; METHOD=MALDI; RANGE=1-36; NOTE=Ref.1. -!- SIMILARITY: Belongs to the assassin bug toxin family. Pfam; PF08117; Toxin 30; 1.
PROSITE; PS60010; ASSASSIN BUG TOXIN; 1.
Calcium channel inhibitor; Direct protein sequencing; Ionic channel inhibitor; Neurotoxin; Toxin.
PEPTIDE 2DB8C392FA876F3E CRC64; /FTId=PRO 0000044890. By similarity. By similarity. By similarity. 23-JAN-2002, integrated into UniProtKB/Swiss-Prot. 36 AA. PROTEIN SEQUENCE, AND MASS SPECTROMETRY. InterPro; IPR012325; Ass_bug_toxin. PRT; sequence version 1. Isyndus obscurus (Assassin bug) 23-JAN-2002, sequence version 07-FEB-2006, entry version 25 3945 MW; STANDARD; 36 AA; IOB1_ISYOB Length: 36 NCBI_TaxID=184615; TISSUE=Saliva; AA_SEQUENCE 1.0 IOB1 ISYOB P58609; Toxin Iobl DISULFID DISULFID SEQUENCE DISULFID

February 16, 2007 16:49 Type: P Check: 6937

GMWGECKDGL TICLAPSECC SEDCEGSCIM W

CXG6 CONTE Length: 31

32 AA

PRT;

STANDARD;

By similarity.
By similarity.
By similarity.
O1E836DAB1D04580 CRC64,

3334 MW;

31 AA;

SEQUENCE

13

DISULFID DISULFID DISULFID

4-carboxyglutamate.
6'-bromotryptophan.

GADEDCLPRG SKCLGENKQC CEKTTCMFYA NRCVGI

STANDARD; !! AA SEQUENCE 1.0 TXHA1_SELHA P83591;

27-JUN-2003, integrated into UniProtKB/Swiss-Prot 33 AA PRT;

01-JUN-2003, sequence version 1.
07-MAR-2006, entry version 24.
Hainantoxin-1 (Hainantoxin-1) (HnTx-1).
Selenocosmia hainana (Chinese bird spider).
Eukaryota; Metazoa; Arthropoda; Chelicerata; Arachnida; Araneae;

Mygalomorphae, Theraphosidae, Ornithoctonus NCBI_TaxID=209901;

TISSUE=Venom; PubMed=12727268; DOI=10.1016/S0041-0101(02)00280-5; PROTEIN SEQUENCE.

tetrodotoxin-Xiao Y.-C., Liang S.-P.; "Purification of Hainantoxin-V, a tetrodoto sensitive sodium channel inhibitor from the venom of the spider Toxicon 41:643-650(2003). Selenocosmia hainana.

SEQUENCE REVISION TO 30-32, FUNCTION, SUBUNIT, SUBCELLULAR LOCATION, TISSUE SPECIFICITY, MASS SPECTROMETRY, DISULFIDE BONDS, AMIDATION, IC(50), AND STRUCTURE BY NMR.
TISSUE-VENOM;

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zhu Q., Liu Z.-H., Liang S.-P.; Fruction and solution structure of hainantoxin-III, a potent neuronal TTX-sensitive sodium channel antagonist from Chinese bird spider Selenocosma hainana.";
                                                                                                      -!- FUNCTION: Is a depressant toxin. Binds and blocks insect sodium channels without altering the activation or inactivation kinetics.
                                                                                                                                                                                                                                                                                                                                                                                                                                   NOTE-Ref.2.
-!- MISCELLANEOUS: IC(50) is 68 +/- 6 uM on rNal.2/betal channel.
-!- MISCELLANEOUS: IC(50) is 4.3 +/- 0.3 uM on insect sodium channel
                                         "Function and solution structure of hainantoxin-I, a novel insect sodium channel inhibitor from the Chinese bird spider Selenocosmia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROTEIN SEQUENCE, FUNCTION, SUBUNIT, SUBCELLULAR LOCATION, TISSUE SPECIFICITY, MASS SPECTROMETRY, DISULFIDE BONDS, AMIDATION, AND STRUCTURE BY NMR.
PubMed=14675784; DOI=10.1016/S0014-5793(03)01303-6;
Li D.-L., Xiao Y.-C., Hu W.-J., Xie J.-Y., Bosmans F., Tytgat J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Check: 2511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-2002, integrated into UniProtKB/Swiss-Prot.
01-NOV-2002, sequence version 1.
07-MAR-2006, entry version 22.
Hainantoxin-3 (Hainantoxin-III) (HnTx-III).
Selenocosmia hainana (Chinese bird spider).
Eukaryota: Metazoa; Arthropoda; Chelicerata; Arachnida; Araneae;
Mygalomorphae; Theraphosidae; Ornithoctonus.
                                                                                                                                                               -!- TISSUE SPECIFICITY: Expressed by the venom gland.
-!- MASS SPECTROMETRY: MW=3608.02; METHOD=MALDI; RANGE=1-33;
                                                                                                                                                                                                                                                                                                                                           GO; GO:0005576; C:extracellular region; NAS.
GO; GO:0019871; F:sodium channel inhibitor activity; NAS.
GO; GO:0006952; P:defense response; NAS.
GO:0009405; P:pathogenesis; NAS.
InterPro; IPR011140; Huwentoxin-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Type: P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3614 MW; 24E8E5053A41E377 CRC64;
                                                                                                                                                                                                                                        para/tipE.
-!- SIMILARITY: Belongs to the huwentoxin-1 family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hainantoxin-1.
/FTId=PRO_0000045004.
Leucine amide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         February 16, 2007 16:49
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                                                                                                                                                 -1- SUBCELLULAR LOCATION: Secreted protein.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                        555:616-622(2003)
                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR011696; Toxin
Pfam; PF07740; Toxin_12; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                              PDB; 1NIX; NMR; A=1-33.
                                                                                                                                  -!- SUBUNIT: Monomer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SELHA Length: 33
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Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms Distributed under the Creative Commons Attribution-NoDerivs License GO; GO:0005576; C:extracellular region; NAS.
GO; GO:0019871; F:sodlum channel inhibitor activity; NAS.
GO; GO:0019871; F:sodlum channel inhibitor activity; NAS.
GO; GO:0007268; P:synaptic transmission; NAS.
InterPro; IPR01140; Humantoxin-1.
InterPro; IPR011696; Toxin_12.
Ffam, PF07740; Toxin_12; 1.
Amidation; Direct protein sequencing; Ionic channel inhibitor;
Neurocoxin; Presynaptic neurotoxin; Sodium channel inhibitor;
Neurotoxin; Presynaptic neurotoxin; Sodium channel inhibitor;
MOD_RES 33 Leucine amide. -i- SUBUNIT: Monomer.
-i- SUBCELULAR LOCATION: Secreted protein.
-i- TISSUE SPECIFICITY: Expressed by the venom gland.
-i- MASS SPECIFICITY: Mw=3607.6; METHOD=Electrospray; RANGE=1-33; Check: 2983 FUNCTION: Lethal neurotoxin. Acts selectively on terodotoxin-sensitive voltage-gated sodium channels. Type: P 3615 MW; 192DB5BCC541E811 CRC64; -!- SIMILARITY: Belongs to the huwentoxin-1 family February 16, 2007.16:50 HSSP; P56676; 1QK6. TXHA3_SELHA Length: 33 33 AA; 33 9 2 9 MOD RES DISÜLFID SEQUENCE DISULFID DISULFID

11AA SEQUENCE 1.0 ID TXHP1 HETVE

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1 GCKGFGDSCT PGKNECCPNY ACSSKHKWCK VYL

05-DEC-2001, integrated into UniProtKB/Swiss-Prot.
05-DEC-2001, sequence version 1.
07-FEB-2006, entry version 23.
Heteropodatoxin-1 (HPTX1) (Toxin AU3/KJ5).
Heteropoda venatoria (Giant crab spider).
Eukaryota, Metazoa, Arthropoda, Chelicerata, Arachnida, Araneae, 33 A.A. PRT; STANDARD; NCBI_TaxID=152925; P58425;

PROTEIN SEQUENCE, CHARACTERIZATION, AND MASS SPECTROMETRY TISSUE=Venom;

PROTEIN SEQUENCE, FUNCTION, DISULFIDE BONDS, AND MASS SPECTROMETRY MEDLINE=97211638; PubMed=9058605; Sanguinetti M.C., Johnson J.H., Hammerland L.G., Kelbaugh P.R., Volkmann R.A., Saccomano N.A., Mueller A.L.; Heteropodatoxins: peptides isolated from spider venom that block Kv4.2 potassium channels."; Mol. Pharmacol. 51:491-498(1997). TISSUE=Venom;

**Relbaugh P.R., Saccomano N.A., Volkmann R.A.,
"Calcium channel blocking polypeptides from Heteropoda venatoria.",
Patent number USS627154, 06-MAY-1997.
-!- FUNCTION: Inhibitor of voltage-gated potassium channels. Blocks
potassium currents by binding to KV4.2 potassium channels. Also
blocks calcium channels.
-!- SUBCELLULAR LOCATION: Secreted protein.
-!- TISSUE SPECIFICITY: Expressed by the venom gland.
-!- PTM: Contains three disulfide bonds.
-!- PTM: Contains three disulfide bonds.

NOTE=Ref.1

MASS SPECTROMETRY: MW=3909.94; METHOD=Electrospray; RANGE=1-33;

SIMILARITY: Belongs to the spider potassium channel inhibitory toxin family.

Submitted (OCT-2002) to Swiss-Prot

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                          Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms Distributed under the Creative Commons Attribution-NoDerivs License
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROTEIN SEQUENCE, AND MASS SPECTROMETRY.

TISSUE=Venom;

Pubmed=12727259; DOI=10.106/S0041-0101(02)00361-6;

Zeng X.-Z., Xiao Q.-B., Liang S.-P.;

"Purification and characterization of raventoxin-I and raventoxin-III,

two neurotoxic peptides from the venom of the spider Macrothele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Toxicon 41:651-656 (2003).
-!- FUNCTION: This toxin blocks the neuromuscular transmission. This toxin is active only against mammals.
-!- SUBCELLULAR LOCATION: Secreted protein (By similarity).
-!- TISSUB SPECIFICITY: Expressed by the venom gland.
-!- TASSUS SPECTROMETRY: MW=3287.58; METHOD=MALDI; RANGE=1-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TXHP1_HETVE Length: 33 February 16, 2007 16:50 Type: P Check: 3006
                                                                                                                     InterPro, IPR011696; Toxin_12.
Pfam; PF07740; Toxin_12; 1.
Amidation; Calcium channel inhibitor; Direct protein sequencing; Ionic channel inhibitor; Notassium channel inhibitor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TXR3_MACRV Length: 29 February 16, 2007 16:50 Type: P Check: 2020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Macrothele raveni (Spider).
Eukaryota, Metazoa, Arthropoda, Chelicerata, Arachnida, Araneae,
Mygalomorphae, Hexathelidae, Macrothele.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR012628; Toxin_23.
Pfam; PF08093; Toxin_23; 1.
Direct protein sequencing; Ionic channel inhibitor; Neurotoxin; Sodium channel inhibitor; Toxin.
PEPTIDE 1 29 Raventoxin-3.
                                                                                                                                                                                                                                                                              Heteropodatoxin-1.
/FTId=PRO 0000045019.
/FTYDophan amide.
By similarity.
By similarity.
By similarity.
CBB91832004D0EB CRC64;
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2 16 By similarity.
9 21 By similarity.
15 26 By similarity.
29 AA, 3293 MW, 9143A6E21E4D09FE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10-MAY-2004, integrated into UniProtKB/Swiss-Prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29 AA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-MAY-2004, sequence version 1.
07-FEB-2006, entry version 13.
Raventoxin-3 (Raventoxin III).
                                                                                                                                                                                                                                                                                                                                     33 33
2 17
9 22
16 27
33 AA; 3917 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE=Ref.1.
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ID TXR3 MACRV
AC P61232;
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PEPTIDE
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1 GCKLTFWKCK NKKECCGWNA CALGICMPR

Art Unit: 1644 -

DETAILED ACTION

- 1. Claims 1-20 are pending.
- 2. Applicant's election of Group I, claims 1-6, in the reply filed on 12/05/2006 is acknowledged.
- Claims 7-20 are withdrawn from further consideration pursuant to 37 CFR
 1.142(b) as being drawn to a nonelected invention.
- 4. Claims 1-6 are currently under examination as they read upon a substantially pure conopeptide having the general formula of SEQ ID NO:1.
- 5. Applicant's IDS filed on 08/26/2003 is acknowledged.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, because the specification while being enabled for the substantially pure conopeptides PnVIIA (SEQ

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Art Unit: 1644

ID NO: 6), Tx6.4 (SEQ ID NO: 7), Tx6.9 (SEQ ID NO: 8), Tx6.6 (SEQ ID NO:10), Gm6.7 (SEQ ID NO: 12), Mr6.1 (SEQ ID NO: 13), Mr6.2 (SEQ ID NO:14) and Mr6.3 (SEQ ID NO:15), does not reasonably provide enablement for a substantially pure conopeptide or pharmaceutically acceptable salt thereof, said conopeptide having the general formula I: Xaa₁-Cys-Xaa₂-Cys-Xaa₃-Xaa₄-Cys-Cys-Xaa₅-Cys-Xaa₅-Cys-Xaa₃ (SEQ ID NO:1), wherein Xaa₁ is des-Xaa₁ or a peptide having 1-6 amino acids; Xaa₂ is a peptide having 5-6 amino acids; Xaa₃ is a peptide having 4 amino acids; Xaa₄ is Glu, γ-carboxyglutamic acid (γ - Glu) or Gln; Xaa₅ is a peptide having 3-4 amino acids; Xaa₆ is a peptide having 3-6 amino acids; and Xaa₁ is des-Xaa₁, then Xaa₅ is not the tripeptide Ser-Asp-Asn of claim 1; wherein Xaa₄ is γ - Glu of claim 2; wherein Xaa₁ is des-Xaa₁ of claim 3; wherein Xaa₁ is a peptide having 1-6 amino acids of claim 4; wherein Xaa₂ is des-Xaa₂ of claim 5 and wherein Xaa₂ is a peptide having 2-9 amino acids.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

Factors to be considered in determining whether undue experimentation is required to practice the claimed invention are summarized In re Wands (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). The factors most relevant to this rejection are the scope of the claim, the amount of direction or guidance provided, the lack of

Art Unit: 1644

sufficient working examples, the unpredictability in the art and the amount of experimentation required to enable one of skill in the art to practice the claimed invention. The specification disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without an undue amount of experimentation.

The specification discloses substantially pure conopeptides PnVIIA (SEQ ID NO: 6), Tx6.4 (SEQ ID NO: 7), Tx6.9 (SEQ ID NO: 8), J010 (SEQ ID NO:9), Tx6.6 (SEQ ID NO:10), Tx6.5 (SEQ ID NO:11), Gm6.7 (SEQ ID NO: 12), Mr6.1 (SEQ ID NO: 13), Mr6.2 (SEQ ID NO:14) and Mr6.3 (SEQ ID NO:15) for use as agonists of neuronal pacemaker cation channels and to modulate slow inward cation channels in vertebrates.

There is insufficient guidance in the working examples to show that conopeptides of the formula of SEQ ID NO:1 can be used as agonists of neuronal pacemaker cation channels and to modulate slow inward cation channels in vertebrates.

McIntosh et al. (PTO-892, Reference U) teaches that biological activity of peptide toxins from cone snails is dependent upon highly conserved γ-carboxyglutamate residues within the peptide (In particular, page 14343, first paragraph).

Carboxyglutamate residues appear to function as calcium ligands within proteins and the neurological action of the toxin depends upon calcium binding (In particular, page 14346, first and second full paragraphs). Chandler et al. (PTO-892, Reference V, abstract in particular) teaches that polypeptides from cone snail venom have

Art Unit: 1644

antagonistic properties to N-methyl-D-aspartate (NMDA) that is dependent upon highly conserved γ-carboxyglutamate residues within the peptide.

Therefore, the functional polypeptide species of conopeptides of the formula of SEQ ID NO:1 are highly unpredictable. The large number of species represented by the formula of SEQ ID NO:1 encompass many inoperative species as evidence by the state of the art and the importance of particular residues within the conopeptide that retain neurostimulatory activity.

In addition, the specification gives no guidance as to what amino acids and/ or peptides may be substituted for the variable Xaa₁ through Xaa₇ positions that will still reatin the desired functional characteristics. Further, the specification does not detail whether the amino acids may be only be naturally occurring or whether they may also be modified and retain function as agonists of neuronal pacemaker cation channels that can modulate the slow inward cation channels in vertebrates. The scope of enablement set forth in the specification is not commensurate in scope with the claims.

Reasonable correlation must exist between the scope of the claims and scope of the enablement set forth. In view on the quantity of experimentation necessary the limited working examples, the nature of the invention, the state of the prior art, the unpredictability of the art and the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

Art Unit: 1644

9. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant is in possession of: the substantially pure conopeptides PnVIIA (SEQ ID NO: 6), Tx6.4 (SEQ ID NO: 7), Tx6.9 (SEQ ID NO: 8), Tx6.6 (SEQ ID NO:10), Gm6.7 (SEQ ID NO: 12), Mr6.1 (SEQ ID NO: 13), Mr6.2 (SEQ ID NO:14) and Mr6.3 (SEQ ID NO:15).

Applicant is not in possession of a substantially pure conopeptide or pharmaceutically acceptable salt thereof, said conopeptide having the general formula I: Xaa₁-Cys-Xaa₂-Cys-Xaa₃-Xaa₄-Cys-Cys-Xaa₅-Cys-Xaa₆-Cys-Xaa₇ (SEQ ID NO:1), wherein Xaa₁ is des-Xaa₁ or a peptide having 1-6 amino acids; Xaa₂ is a peptide having 5-6 amino acids; Xaa₃ is a peptide having 4 amino acids; Xaa₄ is Glu, γ-carboxyglutamic acid (γ - Glu) or Gln; Xaa₅ is a peptide having 3-4 amino acids; Xaa₆ is a peptide having 3-6 amino acids; and Xaa₇ is des-Xaa₇ or a peptide having 2-9 amino acids, with the proviso that when Xaa₁ is des-Xaa₁, then Xaa₅ is not the tripeptide Ser-Asp-Asn of claim 1; wherein Xaa₄ is γ - Glu of claim 2; wherein Xaa₁ is des-Xaa₁ of claim 3; wherein Xaa₁ is a peptide having 1-6 amino acids of claim 4; wherein Xaa₇ is des-Xaa₇ of claim 5 and wherein Xaa₇ is a peptide having 2-9 amino acids.

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Applicant has disclosed only conopeptides PnVIIA (SEO ID NO: 6), Tx6.4 (SEO ID NO: 7), Tx6.9 (SEQ ID NO: 8), Tx6.6 (SEQ ID NO:10), Gm6.7 (SEQ ID NO: 12), Mr6.1 (SEQ ID NO: 13), Mr6.2 (SEQ ID NO:14) and Mr6.3 (SEQ ID NO:15); therefore, the skilled artisan cannot envision all the contemplated polypeptide possibilities recited in the instant claims. Consequently, conception cannot be achieved until a representative description of the structural and functional properties of the claimed invention has occurred, regardless of the complexity or simplicity of the method. Adequate written description requires more than a mere statement that it is part of the invention. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC1993). The Guidelines for the Examination of Patent Application Under the 35 U.S.C.112, ¶ 1"Written Description" Requirement make clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 20001, see especially page 1106 3rd column).

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the written description inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons

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of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See <u>Vas-Cath</u> at page 1116.). Consequently, Applicant was not in possession of the instant claimed invention. See <u>University of California v. Eli Lilly and Co.</u> 43 USPQ2d 1398.

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Applicant is directed to the final Guidelines for the Examination of Patent Applications
Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No.
4, pages 1099-1111, Friday January 5, 2001.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Eldridge et al. (IDS filed on 08/26/2003).

Eldridge et al. teaches the peptide A(Xaa₁ peptide of 1-6 amino acids) -C-AETGAV(Xaa₂ peptide of 5-6 amino acids)-C-VHND(Xaa₃ peptide of 4 amino acids)-E(Glu)-C-C-SGA(Xaa₅ peptide of 3-4 amino acids)-C-SPIFNY(Xaa₆ peptide having 3-6 amino acids)-C-LPQ(Xaa₇ peptide having 2-9 amino acids) in Figure 2. In the peptide,

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Xaa₁ is a peptide having 1-6 amino acids as recited in claim 4 and Xaa₇ is a peptide

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having 2-9 amino acids as recited in claim 6.

The reference teachings anticipate the claimed invention.

12. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by

WO 95/01436 (PTO-892, Reference N, SEQ ID NO:10 on page 46).

WO 95/01436 teaches the peptide (Xaa₁ is des-Xaa₁) -C-KTYSKY (Xaa₂ peptide

of 5-6 amino acids)-C-XADS(Xaa₃ peptide of 4 amino acids)-X(Glu, γ - Glu or Gln)-C-C-

TXQ(Xaa₅ peptide of 3-4 amino acids)-C-VRSY(Xaa₆ peptide having 3-6 amino acids)-

C-TLF(Xaa₇ peptide having 2-9 amino acids) in SEQ ID NO:10 on page 46 and in claim

18. In the peptide, Xaa₁ is des-Xaa₁ as recited in claim 3 and Xaa₅ is not Ser-Asp-Asn

as recited in claim 1. Xaa4 is any amino acid including Glu, γ - Glu or Gln as recited in

claim 2. Xaa₇ is a peptide having 2-9 amino acids as recited in claim 6

The reference teachings anticipate the claimed invention.

13. Claims 1, 3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by

WO 94/10196 (PTO-892, Reference W, SEQ ID NO:3).

WO 94/10196 teaches the peptide (Xaa₁ is des-Xaa₁) -C-AEFQSK (Xaa₂ peptide

of 5-6 amino acids)-C-KKDS(Xaa₃ peptide of 4 amino acids)-E(Glu)-C-C-GTLE(Xaa₅

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peptide of 3-4 amino acids)-C-SPTWKW(Xaa₆ peptide having 3-6 amino acids)-C-VYPSPF(Xaa₇ peptide having 2-9 amino acids) in SEQ ID NO:3 on page 19 and in claim 1 on page 24. In the peptide, Xaa₁ is des-Xaa₁ as recited in claim 3 and Xaa₅ is not Ser-Asp-Asn as recited in claim 1. Xaa₇ is a peptide having 2-9 amino acids as recited in claim 7.

The reference teachings anticipate the claimed invention.

14. Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Ahrens et al. (PTO-892, Reference X).

Ahrens et al. teaches the peptide MGVKSALFIMAVFAAANV-QYVLAA(Xaa₁ peptide of 1-6 amino acids) -C-AETGAV(Xaa₂ peptide of 5-6 amino acids)-C-VHSD(Xaa₃ peptide of 4 amino acids)-E(Glu)-C-C-SGA(Xaa₅ peptide of 3-4 amino acids)-C-SPVFNY(Xaa₆ peptide having 3-6 amino acids)-C-(Xaa₇ is des- Xaa₇) in Figure 4 on page 389 sequence 'OpCtl-1'. In the peptide, Xaa₁ is a peptide having 1-6 amino acids as recited in claim 4 and Xaa₇ is a peptide having 2-9 amino acids as recited in claim 6. The conopeptide of Ahrens et al. is prior art because the term "having the general formula" is open language that includes the addition of other amino acids to the N and/or C terminus.

The reference teachings anticipate the claimed invention.

15. Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Liang et al. (PTO-892, Page 2, Reference U).

Liang et al. teaches the peptide A (Xaa₁ peptide of 1-6 amino acids) -C-KGVFDA (Xaa₂ peptide of 5-6 amino acids)-C-TPGKN(Xaa₃ peptide of 4 amino acids)-E(Glu)-C-C-PNRV(Xaa₅ peptide of 3-4 amino acids)-C-SDKHKW(Xaa₆ peptide having 3-6 amino acids)-C- KWKL(Xaa₇ is a peptide of 2-9 amino acids) in Figure 7 on page 977 sequence 'OpCtl-1'. In the peptide, Xaa₁ is a peptide having 1-6 amino acids as recited in claim 4 and Xaa₇ is a peptide having 2-9 amino acids as recited in claim 6.

The reference teachings anticipate the claimed invention.

16. Claims 1, 4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Ayres et al. (PTO-892, Page 2, Reference V).

Ayres et al. teaches the peptide MQIKTVLLAFAMFAALNA-QHVLAA (Xaa₁ peptide of 1-6 amino acids) -C-AETGAV(Xaa₂ peptide of 5-6 amino acids)-C-VHND(Xaa₃ peptide of 4 amino acids)-E(Glu)-C-C-SGA(Xaa₅ peptide of 3-4 amino acids)-C-SPIFNY(Xaa₆ peptide having 3-6 amino acids)-C-LPQ(Xaa₇ peptide having 2-9 amino acids) in Figure 2. In the peptide, Xaa₁ is a peptide having 1-6 amino acids as recited in claim 4 and Xaa₇ is a peptide having 2-9 amino acids as recited in claim 6. The conopeptide of Ayres et al. is prior art because the term "having the general

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formula" is open language that includes the addition of other amino acids to the N and/or C terminus.

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The reference teachings anticipate the claimed invention.

17. No claim is allowed.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nora M. Rooney whose telephone number is (571) 272-9937. The examiner can normally be reached Monday through Friday from 8:30 am to 5:00 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 3, 2007

Nora M. Rooney, M.S., J.D.

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Patent Examiner

Technology Center 1600

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Double patenting I

("having")

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Circular & rejection